

Volume 23

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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

Before The Honorable Maxine M. Chesney, Judge

UNITED STATES OF AMERICA,)	
)	
Plaintiff,)	
)	
VS.)	NO. CR 18-00465 MMC
)	
UNITED MICROELECTRONICS)	
CORPORATION, INC.,)	
)	
Defendant.)	
_____)	

San Francisco, California
Wednesday, April 6, 2022

TRANSCRIPT OF BENCH TRIAL PROCEEDINGS

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9:02 a.m.

P R O C E E D I N G S

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THE CLERK: All rise. Court is back in session, the Honorable Maxine M. Chesney presiding.

Please be seated.

THE COURT: Okay. Good morning. I received over the evening the Government's motion for judgment of acquittal -- I'm sorry -- the defendant's motion for judgment of acquittal. And I just wanted to make sure the Government has that.

MS. VARTAIN: Yes. Thank you, Your Honor.

THE COURT: Okay. Good.

There is something else that I wanted to take up before we started, but I don't know if there's anything you wanted to take up before we started.

MR. DiCANIO: No. Thank you, Your Honor.

MS. VARTAIN: Not from the Government. Thank you.

THE COURT: All right. Then we're back to Professor Yang and the continued cross-examination.

MR. SLOAN: Direct examination.

THE COURT: I mean -- sorry -- direct examination.

MR. SLOAN: I hope it's coming up. This is direct, Your Honor.

THE COURT: I'm a little tired this morning. I got a lot of things going on in chambers, including a hearing on a

1 TRO at 4:15 this afternoon. So there's just a lot of things
2 going on. So if I mix you up a little bit, eventually I'll get
3 you all straightened out again.

4 **MR. SLOAN:** Keeps us on your feet, Your Honor.

5 **THE COURT:** Well, you know, just kind of thinking in
6 my mind moving along to cross. We're just not there yet.
7 Okay.

8 All right. Whenever you would like to go.

9 **WOODWARD YANG,**

10 called as a witness for the defendant, having been previously
11 duly sworn, testified further as follows:

12 **DIRECT EXAMINATION (Resumed)**

13 **BY MR. SLOAN:**

14 **Q.** Good morning, Professor Yang. How are you?

15 **A.** Good morning.

16 **Q.** In the course of your review of the documents in your
17 analysis in this case, did you review Project M's engineering
18 documents showing the cell structure of the DRAM device that
19 UMC was developing?

20 **A.** Yes. They had some -- they had many documents showing the
21 cell structure, yes.

22 **Q.** I wanted to show you one document in particular, which
23 we've marked as Exhibit D3361.

24 **MR. SLOAN:** And, Your Honor, I have a copy of this.
25 We've provided it to the Government before, but I'm going to

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1 provide another copy to the Government now and hand a copy to
2 the witness.

3 **THE COURT:** Okay. Now, the clerk will need one.

4 **MR. SLOAN:** And we will give one to the clerk.

5 **THE COURT:** Great.

6 **BY MR. SLOAN:**

7 **Q.** Do you recognize this document, Professor Yang?

8 **A.** Yes, I do.

9 **Q.** And what is it?

10 **A.** It's a reverse-engineering analysis of the UMC DRAM. So
11 I believe that UMC asked another company to go ahead and cut
12 open its DRAM and analyze it.

13 **MR. HUNTER:** Objection, Your Honor. I'd move to
14 strike. Speculation.

15 **THE COURT:** Sustained as to the answer, everything
16 after it's "a reverse-engineer analysis of" -- I don't know
17 about UMC DRAM. They are UMC.

18 **MR. SLOAN:** Correct, Your Honor.

19 **THE COURT:** So is this somebody else, you think,
20 reverse-engineering something UMC did?

21 **MR. SLOAN:** Your Honor, this is a company that did a
22 reverse-engineering report for UMC.

23 **THE COURT:** So it's just a reverse engineering
24 analysis?

25 **MR. SLOAN:** Correct, Your Honor.

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1 **THE COURT:** Okay. Fine. And it says on it "UMC
2 DRAM," whatever that's supposed to mean, then.

3 But -- okay. You want to keep going and see if you run
4 into another objection?

5 **MR. SLOAN:** Sure.

6 **BY MR. SLOAN:**

7 **Q.** It indicates that it's prepared by SIPTK, Silicon
8 Intellectual Property Technology. Are you familiar with this
9 organization?

10 **A.** Yes.

11 **Q.** And it's a reverse-engineering report. What's your
12 understanding of what this is a reverse-engineering report of?

13 **A.** A reverse-engineering report of a UMC DRAM is what it
14 says. And so inside you can see that they've done the normal
15 sort of reverse-engineering analysis where they've cut open the
16 chip, ground it down, taken SEM pictures of various structures.

17 **Q.** And is this similar to the TechInsights reports that we've
18 seen elsewhere in the discovery?

19 **A.** It's very similar; not at the same level of detail as a
20 TechInsights report, but very similar.

21 **THE COURT:** Whose chip are they cutting up?

22 **THE WITNESS:** Apparently it's the UMC DRAM chip. So
23 UMC manufactured a DRAM chip.

24 **THE COURT:** That's what I was asking. Why would they
25 be getting -- UMC be getting a reverse-engineering report for

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1 something they make?

2 **BY MR. SLOAN:**

3 **Q.** Professor Yang, can you answer that question?

4 **A.** If I could -- I'm only speculating why. But I believe
5 that they were probably worried about some type of litigation
6 in Taiwan. It appears that they were trying to have a third
7 party do the analysis in an impartial way, but I'm only
8 guessing why they did -- why they had that done. Clearly, they
9 could have done it themselves. And they have more than enough
10 capability to do that.

11 **THE COURT:** Is this dated somewhere?

12 **MR. SLOAN:** Your Honor, there is metadata. And I
13 think that Professor Yang is familiar with it and is prepared
14 to testify about it.

15 **THE COURT:** Go again. All right. See what happens.
16 We've been through the metadata idea and how to get it in about
17 five times at least before we got to this. Please proceed, and
18 we'll see if there's some objection.

19 **BY MR. SLOAN:**

20 **Q.** Did you carefully review this report?

21 **A.** Yes, I've carefully reviewed this report. It's actually
22 part of my -- well, it was something that I had discussed with
23 counsel ahead of time. And I believe it was included in my
24 expert disclosure that counsel submitted.

25 **Q.** In your experience, do experts in your field routinely

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1 rely upon reports like this in offering their expert opinions?

2 **A.** Absolutely. We don't have the time to go do the SEM
3 analysis ourselves and prepare the samples.

4 **Q.** And where did you -- do you know where you obtained this
5 report?

6 **A.** I obtained this report from counsel. And I understand
7 from counsel that it came from UMC.

8 **THE COURT:** It does have a UMC Bates stamp on it. Is
9 there any dispute as to the general idea that UMC had it and
10 gave it to the Government that gave it to the defense?

11 **MR. HUNTER:** No dispute about that, Your Honor.

12 **THE COURT:** Okay.

13 **BY MR. SLOAN:**

14 **Q.** And have you reviewed the metadata for this document,
15 Professor Yang?

16 **A.** Yes. I was able to open the file and take a look at what
17 you call the last modified date of it.

18 **Q.** And is the last modified date on or about August 2008?

19 **A.** No, it's about August 2018.

20 **Q.** That's what I meant, yes.

21 **A.** Yeah.

22 **Q.** Did you consider this report in connection with your
23 analysis of the cell structure of UMC's DRAM?

24 **A.** Sure. It's supportive of my understanding of UMC's DRAM
25 manufacturing process.

1 Q. And I had asked you before. Is this report disclosed in
2 your expert disclosure?

3 A. Yes. I understand it was included in my expert
4 disclosure.

5 MR. SLOAN: Your Honor, at this point we would move
6 this Exhibit 3661 into evidence.

7 THE COURT: Any objection?

8 MR. HUNTER: Objection to foundation, Your Honor.
9 Again, this document itself is not dated. The fact that it was
10 last modified -- so someone looked at it -- I don't know what
11 UMC DRAM this is referring to. I've heard testimony that UMC
12 made DRAM back in 2001. And I don't know if there's an e-mail
13 accompanying this. Again, there's no e-mail accompanying this
14 exhibit. So --

15 THE COURT: Well, the foundation of -- would simply
16 be -- I guess, if you mean foundation for authenticity, it
17 appears to be what it purports to be. Now, your argument is we
18 don't know what it purports to be, I guess, because it doesn't
19 appear to be dated in some way or some way that you could
20 determine.

21 Now, this -- when it was prepared or what chip was being
22 looked at, somebody last took a look at it in August of 2018,
23 which is -- I guess is that right before the purported transfer
24 to Jinhua and about a -- oh, considerably more than a year
25 after the raid, I guess.

1 The -- when the witness said that the last modified
2 date -- I was just interested because, in the past, somebody
3 has had, like, an e-mail -- or not an e-mail but a printout of
4 metadata.

5 Did you actually look in the file itself online in effect
6 and --

7 **THE WITNESS:** It's a little bit confusing here, to be
8 perfectly honest. Sometimes when you look at the file, the
9 last modified date, because of the way the files are
10 electronically handled, says today because you just opened it.

11 And so sometimes the best way to do this is by looking at
12 where the files are actually stored originally. And that's in
13 a commercial system called Relativity. And if you log in to
14 it, you can get access to the file, as I understand, was
15 provided to counsel.

16 And in there when you open the file, within that piece of
17 software, you can click on something that says "metadata." And
18 the metadata will say, if it has that information, when it was
19 created and when it was last modified.

20 **THE COURT:** This is something you can subscribe to or
21 what? Because you say it's commercial.

22 **THE WITNESS:** Right. I believe it's a service that's
23 provided to many lawyers or legal counsels in order to provide
24 a secure place to store a database because it provides proper
25 encryption because we're dealing with very sensitive

1 information.

2 **THE COURT:** Okay. It's something you essentially buy
3 in some --

4 **THE WITNESS:** I believe it's a subscription, but I
5 have no idea. I'm speculating at this point.

6 **THE COURT:** So when Mr. Sloan was talking about some
7 Relativity file or whatever he was talking about the other day,
8 that's what you understand he was talking about?

9 **THE WITNESS:** Yes.

10 **THE COURT:** And that a third party has said this is
11 the last modified date essentially?

12 **THE WITNESS:** They -- so I'm not sure who's saying
13 what, but I believe that they received the information -- I
14 understand that they received the information from
15 the Government. And somehow they're preserving that
16 information in a secure fashion and allowing the defense to
17 access that information.

18 **THE COURT:** Okay.

19 Is that your understanding or not, Mr. Sloan?

20 **MR. SLOAN:** It is, Your Honor. And it was produced in
21 native format in an Excel file. And if you look on the screen
22 right now, the metadata from that file is being projected. And
23 you'll see that last modified date that we're referring to.

24 **THE COURT:** Okay. Now, is this witness able to tell
25 by looking at the pictures or anything else that's in there

1 whether this adds up in some way to a memory cell as opposed to
2 a logic one or --

3 MR. SLOAN: I think he can, Your Honor. And I'm happy
4 to ask him.

5 THE COURT: Okay.

6 MR. HUNTER: Your Honor, I would just insert a hearsay
7 objection also to the extent this is a third-party report
8 saying what these pictures purportedly are.

9 THE COURT: No, no. The third party isn't saying what
10 the pictures are; the third party, as I understand it, is some
11 service that can be purchased that figures out what the last
12 modified date was by being fed something. And this witness
13 thinks it was fed to the service by the Government, who passed
14 it on in that form to the defendant.

15 Is that correct or wrong?

16 MR. HUNTER: My objection was more to the content
17 of -- not to the metadata but to the content of the report
18 itself.

19 THE COURT: Well, I understood your objection partly
20 to be that you can't tell what chip they were looking at. So
21 was this something that's relevant to our case, or was this
22 something that goes back to ancient history when they were
23 working on DRAM?

24 But at that point, I think it was -- I think it was logic,
25 not memory. But I was wondering if the witness looked at it

1 and whether this is something that he can tell -- and he may
2 not be able to himself, not reported by anyone, because I don't
3 think there's anything there that's really very helpful.

4 Well, there are -- there are statements. You're correct
5 about that. And maybe he would have to rely on those. I don't
6 know. I guess one question is can he -- does he have a way, if
7 you look at this document, to tell whether they're working with
8 a logic cell or a memory cell?

9 **THE WITNESS:** Yes.

10 **THE COURT:** Can you do that -- well, I think he can if
11 it's a report and somebody had it. I think he can consider
12 what the report says on it. I don't know if he can make that
13 determination without the clues that the headings give.

14 Do you need the headings? Probably.

15 **THE WITNESS:** Let's say there are some where the
16 headings are useful; there are some photographs where it's
17 consistent with my understanding of what it is and would be
18 inconsistent with my understanding of what logic is.

19 **THE COURT:** Okay. I'll overrule the objection. If
20 you want to follow up on that further, you can. But I don't
21 know if Mr. Sloan wants to ask anything else.

22 **MR. HUNTER:** Thank you, Your Honor.

23 **MR. SLOAN:** Sure.

24 **THE COURT:** Just so it's clear for the clerk, then,
25 you're offering 3361?

1 **MR. SLOAN:** Correct, Your Honor.

2 **THE COURT:** All right. 3361 is admitted.

3 (Trial Exhibit 3361 received in evidence.)

4 **BY MR. SLOAN:**

5 **Q.** And, Professor Yang, I asked you before. Is this -- this
6 is similar to the TechInsights reports that we've seen earlier?

7 **A.** Yes, it's of a similar vein. It's a different level of
8 depth.

9 **Q.** And is there information in here which is consistent with
10 your understanding that this is an engineering report on the
11 UMC DRAM that was actually part of the technology transfer
12 package?

13 **A.** Yes. I believe that the first sort of clue that it is,
14 you can find on -- it's labeled page 5 of the exhibit. And so
15 this is a case where you look at the heading. And so it's
16 purporting to be the UMC DRAM sample.

17 It shows a die marking that says this mask set that was
18 used to manufacture this chip is dated from 2016, which is
19 probably about the right time frame. And it specifically
20 states that it's a UMC DRAM, the 25-nanometer node.

21 Now, I guess that's just what the document says. And it's
22 going to be difficult, just from looking at this, to absolutely
23 ascertain that. But I think that the other information in the
24 document is consistent with my understanding of what the UMC
25 DRAM should look like.

1 Q. And have you seen other pictures of the UMC DRAM in one of
2 the admitted documents?

3 A. I've seen in some of their engineering reports some of
4 intermediate pictures of various structures that they've built
5 or are analyzing; however, this report actually shows some
6 rather nice photographs that are easy to understand. And so I
7 think that's why it's useful to look at this report rather than
8 kind of a messy engineering report which has lots of other --
9 sort of other things going on in it.

10 Q. And let me direct your attention to page 7 of this report.
11 And if we can project that.

12 What is -- what is that -- what does that page reflect?

13 A. That page reflects the active area of the DRAM array. And
14 we can understand that this is very consistent with what their
15 engineering development documents showed. And it's showing
16 kind of the wordlines as those vertical lines going up and
17 down. And those kind of oval-ish pictures that are kind of
18 tilted, those we could understand as those active areas.

19 And you can see that the active areas are tilted like
20 that. And it's not a very technical term, but they're kind of
21 along a diagonal. And you might also notice that they kind of
22 alternate. And kind of my own personal word for that is I call
23 it jig-joggy. But, anyway, it's kind of that alternating
24 pattern type of -- and that's also consistent with my
25 understanding of what the UMC DRAM should look like.

1 Q. And when you say that they're alternating or jig-jogged,
2 are you reflecting the fact that these -- that the ovals that
3 are kind of at an angle sloping up to the right upper part of
4 the picture, they're not directly one on top of one another;
5 they're -- one is to the left and one is to the right?

6 A. Yes. Yes, they kind of tilt over by one, shifted over by
7 one, shifted over by one. And so they kind of go back and
8 forth like that. I'm sorry. It's just -- I'm very visual, but
9 I'm not very good at describing the picture.

10 THE COURT: That's fine. There's kind of an offset
11 there. It's pushed over a little bit.

12 THE WITNESS: Yes, yes.

13 BY MR. SLOAN:

14 Q. But you call it just kind of a jig-jog?

15 A. I call a jig-joggy, but that's not a very technical term.

16 Q. You didn't learn that in engineering school?

17 A. In engineering school, we make up stuff. We're not very
18 precise with our words.

19 Q. I want to look at another exhibit now, which is 4806,
20 which is the TechInsights report that we've looked at many
21 times before.

22 MR. SLOAN: And, Your Honor, I believe that is in
23 Volume 2.

24 THE COURT: This is already in?

25 MR. SLOAN: Yes. This is in evidence. We've referred

1 to it before in different examinations. And it's in your
2 Volume 2 binder.

3 THE COURT: Okay.

4 BY MR. SLOAN:

5 Q. You want to just look at it on the screen?

6 A. Yes. I see the title on the screen.

7 Q. And you're familiar with this report? This is the
8 TechInsights report for the Samsung 20-nanometer DRAM?

9 A. Yes, it is.

10 Q. And did you rely on this report in preparing your opinion
11 for today?

12 A. Yes, I did.

13 THE COURT: Just so we're clear, now you're on
14 Samsung; you're no longer looking at UMC?

15 THE WITNESS: That's correct.

16 THE COURT: Okay.

17 BY MR. SLOAN:

18 Q. And, again, what do you understand this document to show?

19 A. It says it's a detailed structural analysis of the
20 20-nanometer Samsung DRAM.

21 MR. SLOAN: One moment, Your Honor.

22 BY MR. SLOAN:

23 Q. So I'd like you to take a look at page 91 of this exhibit
24 and let me know whether you've reviewed the electron
25 microscopic picture on that page.

1 A. Yes. There are many, many SEM pictures in this report;
2 but yes.

3 Q. And I'm referring to the picture on the top right-hand
4 side of the page.

5 A. Yes.

6 Q. And what does that reflect?

7 A. Well, it's less in focus; but, again, it's showing the
8 active areas, the AAs. Unfortunately, the wordlines aren't too
9 visible. But you can see that the AAs are kind of those
10 white-ish oval-shaped objects, and they're all tilted. And,
11 again, in my nontechnical term, they're sort of arranged in a
12 jig-joggy fashion.

13 Q. And does that appear to be similar to the cell structure
14 of the UMC device that we just looked at?

15 A. Indeed, yes. That's very similar.

16 Q. Now, let's look at one other document which is also in
17 evidence, which is 4668.

18 MR. SLOAN: And, Your Honor --

19 THE COURT: Are you trying to find the binder or for
20 some other reason? Because I can look at it up here.

21 MR. SLOAN: Yeah, Your Honor, this one, we can put it
22 on the monitor. It's actually not in your current binder.

23 THE COURT: Okay.

24 MR. SLOAN: Do you want to -- I have a hard copy, but
25 it's in evidence if you want to look at it on the monitor.

1 **THE COURT:** I already have a hard copy, right, or I
2 don't?

3 **MR. SLOAN:** You have a hard copy but not in those
4 binders. We've introduced it with Mr. DeBoer.

5 **THE COURT:** Right. So I don't know that you need to
6 give me another copy if what you're going to show is visible up
7 here.

8 **MR. SLOAN:** I think it will be, Your Honor.

9 **THE COURT:** Okay. If I need a hard copy and if I
10 can't get my hands on it quickly in another binder, then I
11 might ask you. But, so far, a lot of this has been okay to
12 read just on the screen. It's not, you know, the really tiny
13 stuff.

14 **BY MR. SLOAN:**

15 **Q.** So are you familiar with this document, which is D4668,
16 which is called the "DRAM competitor 90s analysis review"?

17 **A.** Yes, I am.

18 **Q.** And what is this report?

19 **A.** This is an internal report, I believe, that was prepared
20 by Micron. And they were looking at all of their other DRAM
21 competitors in the industry. And they had performed a
22 legitimate reverse-engineering analysis of the DRAM chips of
23 some of their competitors.

24 And 90 series refers to they considered them their
25 competitors, I believe, at their 90 series, which would be, we

1 understand, 25 nanometers.

2 Q. And if I could have you look at page 13 of this report.

3 A. Yes.

4 Q. And look at the figure on the bottom right of this page.

5 Do you recognize that?

6 A. Yes.

7 Q. And what is that SEM photograph of?

8 A. It says the Elpida 90s modified 6F2, but we would
9 understand that -- I understand that. It's very familiar.

10 It's the Elpida DRAM at 25 nanometers.

11 And since -- my understanding is is that, since Micron
12 eventually acquired Elpida, I think roughly in the same time
13 frame, that this is the same as the Micron 90 series DRAM.

14 Q. And does this have the same jig-jog pattern that you
15 described with respect to the Samsung device and the UMC
16 device?

17 A. No. If you look at this -- let me describe what we're
18 seeing here.

19 These are SEMs. So the wordlines are those vertical lines
20 going up and down. And then you can see the active areas are
21 kind of the diamond-shaped patterns, but they're in what's
22 called -- or Micron, I believe, calls them a herringbone
23 fashion.

24 So some are going up and they're stacked on top of each
25 other, and they tilt from the bottom right to the upper left.

1 And some start from the bottom left and are tilted towards the
2 upper right. And so they're sort of stacked on top of each
3 other. And you can see that it's a very different pattern.

4 Q. And you indicated that this is a 2x3 pattern as opposed to
5 a 3x2 cell architecture?

6 A. Yes. I think, in the nomenclature of the industry, this
7 would be called a 2x3 cell layout. And the jig-joggies are
8 called the 3x2 cell layout.

9 Q. And by the jig-joggies, you mean the Samsung and the UMC
10 devices?

11 A. Yes. I'm sorry. I should be more formal.

12 Q. Did you assist in the preparation of a demonstrative that
13 lays out these photographs together?

14 A. Yes, I did.

15 Q. Okay.

16 MR. SLOAN: And, Your Honor, we prepared a
17 demonstrative. This is a addition to the demonstratives that
18 we prepared earlier. And if I can hand up a copy to you and
19 the clerk and a copy to the Government and hand up a copy to
20 Professor Yang.

21 And you'll see, Your Honor, we've also revised the first
22 page to properly reflect that those are -- should be ATS rather
23 than trade -- TS.

24 BY MR. SLOAN:

25 Q. But I want to direct your attention to page 32 of the

1 demonstrative. And, Professor Yang, is this the demonstrative
2 slide that you were talking about?

3 A. Yes.

4 Q. Okay. And can you describe what you see there and how it
5 reflects your analysis of the cell structure of the different
6 DRAM devices in this case.

7 A. Right. So at a very fundamental level, kind of the very
8 first -- the very foundation of the DRAM is where the active
9 areas are.

10 And so this demonstrative is simply trying to pull all
11 three of those SEM figures from those three different documents
12 to place them side by side for easy comparison. And so you can
13 notice that the UMC 25-nanometer is shown in the middle. And
14 the Samsung 20-nanometer is shown to the right. And the
15 Micron/Elpida 25-nanometer is shown to the left.

16 And so I believe that -- it doesn't even take a great deal
17 of expertise, but you can see the similarities between what I
18 call the jig-joggies and the active area sort of layout pattern
19 of the UMC versus the Samsung, and you can see that the sort of
20 herringbone, where the active areas are stacked on top of each
21 other and kind of tilted from right to left or left to right
22 stacked on top of each other. That's sort of the foundation of
23 the Micron/Elpida.

24 So I think this clearly shows that in kind of one eyeful.

25 Q. And how does -- that difference in the cell structure, how

1 does that contribute to your overall opinion in this case?

2 A. Well, it's just one very clear indication that the
3 fundamental cell structure between the UMC and the Micron
4 Elpida are different.

5 Q. Professor Yang, to sum up, do you have an opinion as to
6 whether the Government's alleged trade secrets were well known
7 and reasonably ascertainable through legitimate means?

8 A. I believe that the documents that are represented in the
9 sum of all these sort of trade secrets, I believe that there
10 are certain aspects of them that are generally known, and those
11 would be sort of the general concepts at the level of the
12 modules and submodules for manufacturing the DRAM.

13 And I believe that there are certain aspects of the
14 information in the ATS that lead to DRAM structures, and those
15 DRAM structures are therefore reverse engineerable and properly
16 ascertainable. So I believe that it's the combination of those
17 two things that are certainly well known and generally
18 ascertainable.

19 Q. Based on your review of all of the evidence in the case,
20 do you have an opinion as to whether Project M's development of
21 its DRAM structure was the result of independent development?

22 A. From looking at all of the documents in the case -- and I
23 just looked at documents -- it appears as though Project M had
24 a substantially independent engineering effort in developing
25 their DRAM product.

1 Q. And from your review of all the documents, do you have an
2 opinion as to whether the Government's alleged trade secrets
3 are substantially reflected in any way in the final tech
4 transfer package that UMC prepared for delivery to Jinhua?

5 A. I do not -- so could you repeat the question again? I
6 just want to get it exactly right.

7 Q. Yeah.

8 Do you have an opinion, based on all your review of all
9 the evidence, as to whether the Government's alleged trade
10 secrets were substantially reflected in the tech transfer
11 package transferring UMC's DRAM technology to Jinhua?

12 A. So would you like me to speak to the level of what the
13 Government calls the alleged trade secrets, or would you like
14 me to speak to the level of what I would consider not generally
15 well known? Because if it's generally well known, then it
16 can't be a trade secret, is my understanding. So that's why
17 I'm not exactly understanding the question.

18 Q. Why don't you answer the latter question, then.

19 A. Okay. So if we take the idea that there are these sort of
20 trade secrets and that your earlier question asked me what was
21 not known -- or what was known -- generally knowable and
22 properly ascertainable from the trade secrets, then we would
23 understand that at the level of modules and submodules, these
24 are already well known in the industry, well known to people,
25 and we'd understand that any sort of structures that are

1 described in the -- or any sort of resulting structures that
2 come from the trade secrets, if they were produced, could be
3 readily ascertainable.

4 So if we take those three pieces of information out and we
5 say, okay, what's remaining in the trade secrets, what
6 information from there -- does any significant amount of
7 information from there end up in UMC's project? No, I did not
8 see any significant amount of information remaining that ended
9 up in UMC's final project.

10 Q. And, finally, based on your review of all the evidence of
11 the case, did you have an opinion as to whether Project M's
12 timeline was reasonable?

13 A. I think that, from looking at everything that I saw and my
14 understanding that Project M roughly started at the end of 2015
15 and the fact that they had delivered some type of technology
16 transfer package and the technology transfer package wasn't
17 even at what you would call a -- even a finalized state, they
18 weren't even delivering any wafers or at any sort of mass
19 production or wafers with good yield, they had simply
20 demonstrated a prototype in two and a half, two years, I think
21 that's a fairly reasonable time scale, especially if you're
22 considering that this was development of a process technology
23 that wasn't on the bleeding edge, that was one or two general
24 regulations behind, but still using the most advanced
25 equipment.

1 **MR. SLOAN:** No further questions, Your Honor.

2 **THE COURT:** Okay. Then going to at this point
3 cross-examination.

4 **CROSS-EXAMINATION**

5 **BY MR. HUNTER:**

6 **Q.** Good morning, Dr. Yang.

7 **A.** Good morning.

8 **Q.** I don't know if Mr. Sloan and Ms. Reitmeier told you, but
9 we all went to Michigan at some point, and they sell T-shirts
10 there that say "Harvard the Michigan of the East." I don't
11 know if you agree with that.

12 **A.** I'm not -- I'm not a --

13 **Q.** It's not very relevant, but I just thought I'd throw that
14 out there.

15 **A.** The funny thing is the farther away you get from Harvard,
16 the better the reputation. The closer you get, the worse the
17 reputation.

18 **Q.** I'm going to start with actually what we just covered,
19 which was the structure comparisons that you did in your
20 demonstrative.

21 **MR. HUNTER:** And if we could -- if Ms. Bhatia could
22 pull up P177, which is alleged Trade Secret 7, Your Honor. And
23 it's not in the binder. It's just one that's very voluminous.

24 **THE COURT:** All the alleged trade secrets are in
25 already?

1 MR. HUNTER: Yes.

2 THE COURT: Okay. This exhibit is already in?

3 MR. HUNTER: Correct.

4 THE WITNESS: Oh, it's up here. Thank you.

5 BY MR. HUNTER:

6 Q. That binder. But this is alleged Trade Secret 7; so it's
7 not in the binder because it's a big stack.

8 A. Yes. Okay. All right.

9 Q. But you're familiar with this document, right? The
10 110 series traveler?

11 A. Yes.

12 Q. And if we could go to page 54.

13 Now, Dr. Yang, this is the active area module of the
14 Micron 110 series traveler; correct?

15 A. Yes.

16 Q. And that scanning electron microscope image there appears
17 to have the same -- I think you called jig-joggy pattern as the
18 structures you were just comparing from Samsung and UMC; is
19 that right?

20 A. Yes.

21 Q. And this is because Micron at this time had moved to a 3x2
22 architecture for its 110 series; is that right?

23 MR. SLOAN: Objection. Vague as to this time.

24 THE COURT: Okay. Sustained.

25 \\\

1 **BY MR. HUNTER:**

2 **Q.** Dr. Yang, in the 110 series traveler -- if we can go back
3 to the front page of it, I think there is a date on it. Do you
4 understand that time of this document to be September 14, 2015?

5 **A.** That's what it says, yes.

6 **Q.** If we can go back to page 54.

7 So this jig-joggy pattern was being used by Micron at the
8 time of this document; correct?

9 **MR. SLOAN:** Objection, Your Honor, to -- withdrawn,
10 Your Honor.

11 **THE COURT:** Okay.

12 **THE WITNESS:** So I believe that at this time, it's my
13 understanding -- I mean, I can't recall exactly; I have to go
14 back to the documents and what people were saying.

15 It's my understanding that Micron was not in production
16 with this yet. And so, yes, they are using this here, but
17 I believe that they're still in development.

18 **BY MR. HUNTER:**

19 **Q.** Um-hmm. And if we can go to page 12, do you see in the
20 lower right-hand side it says 110 series and those -- kind of
21 shows at -- in this view jig-joggy pattern of the green
22 trapezoids. Is that fair?

23 **A.** I think they're blue on my screen.

24 **Q.** Oh, yeah. Right. The colors are so overlapping.

25 **A.** Yes.

1 Q. But the trapezoids have that jig-joggy pattern; right?

2 A. Yes, yes.

3 Q. And that's a function of the 3x2 architecture; correct?

4 A. Yes.

5 Q. And in the -- in your demonstrative you didn't include any
6 of the SEM images from Micron. Is that fair? From this
7 110 series document?

8 A. Yes, that's fair.

9 Q. Now, Dr. Yang, I want to talk a little bit about what the
10 Government alleges the trade secrets are, just so we can make
11 sure we share a common understanding.

12 Do you understand that the Government is asserting that
13 it's the entire sequence of steps, as indicated in these
14 various documents, that is -- is an alleged trade secret in
15 this case?

16 A. Yes.

17 Q. And those steps add up to various counts, but roughly 500,
18 depending on how you count them. Is that fair?

19 A. Something like that -- I understand it's up to a thousand
20 for the 110 series, but, yes, somewhere between 500 to 1,000,
21 yes, depending on how you count them.

22 THE COURT: 110 is 20-nanometer?

23 THE WITNESS: No. It's called 1X-nanometer.

24 THE COURT: Oh. Okay. So what was 20, then? What
25 number would you put on that --

1 **THE WITNESS:** 20 would be the 100 series.

2 **THE COURT:** I'm sorry. You can't talk at the same
3 time -- it doesn't work -- even though you know where I'm
4 going.

5 Okay. 20 is the 100 and this is the 1X?

6 Okay. All right. Thanks.

7 **BY MR. HUNTER:**

8 **Q.** Now, if we could pull up -- or look -- I don't know if we
9 have it electronically -- but page 4 of your demonstrative.
10 And I think you just said some of this in your summary, but the
11 first on your summary of opinions, it says, "The evidence shows
12 that the process flow modules and sequence of submodules in the
13 ATS were generally known and readily ascertainable." Is that
14 right?

15 **A.** I'm sorry. I'm at a disadvantage because the monitor
16 doesn't show anything. I just want to make sure.

17 **Q.** Dr. Yang, do you have a copy of your demonstrative with
18 you?

19 **A.** I'll try to look for it.

20 **Q.** Okay.

21 **MR. DiCANIO:** Your Honor, we could show --

22 **THE COURT:** It's been modified somewhat. I had been
23 given a page 31 earlier. Then today I was given a page 31 and
24 a 32 and 33. But the 31 that was given to me today says "31
25 corrected," and I think that was to put the A on for the

1 missing entries.

2 **MR. SLOAN:** That's correct, Your Honor. And we'll
3 provide a full copy to the Government and yourself.

4 **THE COURT:** I have it.

5 **MR. SLOAN:** Okay.

6 **THE COURT:** I mean, I started out, and there were
7 20-some pages of demonstratives that were stapled together.
8 Then someone gave me a loose -- maybe a 30. Then there was 31
9 that got removed and then corrected, and then 32, 3 are added
10 today. So but it's all his set of demonstratives.

11 Do you have all the page or not?

12 **THE WITNESS:** I believe that he was referring to the
13 demonstratives from my first day of direct testimony.

14 **THE COURT:** Well, if you're talking about what was
15 stapled together that got added, where did you stop? What
16 page? On what you're holding, what's the last page?

17 **THE WITNESS:** Last page, yes. It says 30.

18 **THE COURT:** So you have all but the last couple. I
19 don't know if anybody is going to that or not.

20 **MR. HUNTER:** It was just page 4, Your Honor. So that
21 page has not been changed.

22 **THE COURT:** So no problem. Okay. You're not going
23 beyond 4.

24 **MR. HUNTER:** Not at this time, no.

25 **THE COURT:** Okay.

1 BY MR. HUNTER:

2 Q. Dr. Yang, I just want to direct your attention to the
3 first bullet. It says, "The evidence shows that the process
4 flow modules and sequence of submodules in the ATS were
5 generally known and readily ascertainable." Is that right?

6 A. Yes.

7 Q. So to make sure we're clear, you're not offering an
8 opinion on the sequence of all the steps that make up the
9 process flow documents. Is that fair? As to whether all of
10 those steps in sequence are generally known and readily
11 ascertainable.

12 THE COURT: Are you cross-referencing, by any chance,
13 Dr. Dyer's Demonstrative A that shows a list of sequences for
14 each module and submodule?

15 MR. HUNTER: Correct, Your Honor. That's part of what
16 we'll get to.

17 THE COURT: Okay. Well, it wasn't clear what steps
18 you were talking about.

19 MR. HUNTER: Oh. Yeah. When -- and to be fair,
20 Dr. Yang, that's a good question.

21 Your Honor, I'm already going to use another page of
22 Dr. Yang's demonstrative, but it hasn't been changed. It's
23 page 8.

24 THE COURT: Okay.

25 \\\

1 BY MR. HUNTER:

2 Q. Dr. Yang, on page 8 you kind of showed the difference
3 between modules, submodules, steps; correct?

4 A. I'm trying to provide some sort of understanding about
5 kind of the resolution of information that you're looking at.
6 That's all that I'm trying to explain, that sort of a very,
7 very full process flow that would be used to actually run a
8 factory needs to be this incredibly complex document down to
9 machine level -- machine parameters whereas, you know, humans
10 may discuss things at the -- more at the level of module and
11 submodule and steps. That's all, yes. And it's a rough
12 terminology, but -- and my colleagues don't always stick by it,
13 but it's a general set of concepts.

14 Q. Understood.

15 A. Yes.

16 Q. And do we share a common understanding that steps are
17 generally kind of one tool does something and then you move to
18 another tool, that would be a -- that would be two steps?

19 A. I -- yes, I agree with Dr. Dyer's sort of general
20 representation of that. But I just want to be careful that
21 sometimes these things get rather complex. And so sometimes
22 these machines are -- have gotten so complex that it's hard to
23 say it's just one step. But I'm -- you know, along those
24 lines, yes.

25 Q. Understood.

1 Now, if we go back to Slide 4 of your demonstrative, with
2 that understanding of the steps, you are not -- and with
3 reference to Bullet 1 -- you are not offering an opinion as to
4 whether the complete series of steps, as identified in the
5 various trade secret documents, were readily known -- I'm
6 sorry -- generally known and readily ascertainable; is that
7 right?

8 **A.** Could you give me that question just one more? I'm -- I
9 just want to make sure I get the keywords.

10 **Q.** Yep. I just want to be clear about what opinions you're
11 not offering. And you are not offering an opinion that the
12 steps -- all of the steps and sequence as defined and shown in
13 the various alleged Micron trade secret documents are generally
14 known and readily ascertainable?

15 **A.** No, I'm not asserting that at all. I don't have an
16 opinion. I don't have that opinion.

17 **Q.** Got it.

18 Did you discuss with counsel at any time whether you could
19 come to that -- an opinion one way or the other on that?

20 **A.** Am I allowed to disclose discussions with counsel? I just
21 want to be careful because in some cases I'm not allowed to
22 disclose discussions with counsel.

23 **MR. SLOAN:** One moment, Your Honor.

24 **THE WITNESS:** I'm just trying to be careful.

25 **MR. HUNTER:** I appreciate that.

(Conferring.)

MR. SLOAN: No objection at this point, Your Honor.

THE COURT: Okay. Go ahead. It's all right.

THE WITNESS: Yes, it was discussed. And I don't think it was ever sort of an issue that it would be even remotely possible to find that exact set of sequences in the public domain. I don't think -- I don't think that was even actually explicitly discussed. I think it's pretty obvious.

BY MR. HUNTER:

Q. Pretty obvious what?

A. That you're not going to find that exact set of things unless somebody had mistakenly published it.

Q. And is that fair -- some of the other alleged trade secrets have these ion implant conditions, these very tables with these very detailed parameters. Do you remember those?

A. Yes.

Q. Is it fair that you're also not offering an opinion on whether those -- kind of that list, the combination of all those ion implant conditions as in alleged Trade Secrets 3 and 4 are in the public domain or, maybe to be fair to your words, generally known and readily ascertainable?

A. So I think I would just like to parse that very carefully.

I believe that those specific conditions used specifically to manufacture the Elpida/Micron DRAM, those are not known, generally known in the public domain. However, it is known

1 that you can implant ions like that. So a single step is well
2 within the range of a typical machine to do. It's a typical
3 range. It's a typical sort of dose. It yields expected
4 results. That type of thing is known. So it's known that you
5 can use a machine to do that. It's just that whole combination
6 to manufacture the Elpida Micron DRAM is not known.
7 Definitely.

8 **Q.** Understood. Thank you.

9 Now, I want to look at your second bullet here. And it
10 says, "The evidence shows that Project M did not practice the
11 steps and full recipes in the alleged secrets."

12 I'm familiar with the word "practice" from having done
13 patent litigation before, and I never want to go back to that.
14 But what does the word "practice" mean to you as used here?

15 **A.** So I'm not a lawyer. So I don't have sort of necessarily
16 the same full appreciation of the word "practice" that you do.
17 But to me "practice" means they didn't actually do it.

18 **Q.** Didn't do it?

19 **A.** Yes.

20 **Q.** Do you agree, though, that the evidence shows that the
21 Project M engineers possessed the alleged trade secrets?

22 **MR. SLOAN:** Objection. Vague and ambiguous as to who
23 the engineers are at what point.

24 **THE COURT:** All right. I'll sustain. It's a bit
25 general.

1 **MR. HUNTER:** That's fair.

2 **BY MR. HUNTER:**

3 **Q.** Dr. Yang, do you agree that the evidence shows that JT Ho
4 possessed the alleged trade secrets from -- at least from the
5 time he started working at UMC up until the time the devices
6 were seized in Taiwan in February 2017?

7 **MR. SLOAN:** Objection, Your Honor. I think this is
8 beyond the scope of his testimony and his expertise.

9 **THE COURT:** As to that form of question, I would
10 sustain. If you want to ask him if he saw certain documents on
11 somebody's computer or whatever or you want him to assume
12 something, I guess you could do that if it's in evidence.

13 **MR. HUNTER:** Sure, Your Honor.

14 **THE COURT:** He doesn't know what JT Ho was doing,
15 let's say. He wasn't there. Okay.

16 **BY MR. HUNTER:**

17 **Q.** Let me ask it this way, Dr. Yang: Did you review
18 documents from the thing from Taiwan called Hard Drive 48?

19 **A.** Honestly, I don't really know what Hard Drive 48 is
20 because all the documents that were provided through the
21 Relativity database and from counsel came -- how do I explain
22 this? -- flat in a hierarchy, as if all the documents were
23 thrown on the floor, and I had no idea which document was
24 which. And so it was a bit of a treasure hunt. So I actually
25 have no idea which document is related to which document. So,

1 you know --

2 Q. Okay. So you weren't able to tell, for example, when you
3 reviewed a document, whether -- what device it might have been
4 sourced from?

5 A. No. I relied on counsel's representation.

6 Q. Did counsel make representations to you about where
7 particular documents came from?

8 A. Sometimes when I asked, I asked, I think, I need to know
9 where this document came from, and they made some
10 representations about where those documents were from. I can't
11 say I recall exactly for every document.

12 Q. Did -- sorry.

13 Were you provided with information in these interchanges
14 with counsel about where any of the alleged trade secrets were
15 found in terms of which devices?

16 A. I didn't -- I wasn't concerned about where they were
17 found. I was more concerned about what they were. And so
18 those were definitely provided to me. I'm not really sort of a
19 provenance file history expert crypt -- I'm not very good at
20 that. I can't even keep my own files organized.

21 Q. That's why we have Ms. Bhatia.

22 Well, let me ask you, then. It says in that same bullet
23 that there was -- you developed an opinion that Project M
24 independently developed its own DRAM.

25 Would it have been useful to you in forming that opinion

1 to know where the alleged trade secrets were found in terms of
2 who possessed them?

3 A. I suppose that would have been useful. But I think the
4 most useful thing would have been to talk to the authors of
5 some of those documents. That would have been very, very
6 useful. And I think that that would actually resolve where
7 those documents were from.

8 Q. And I think during your direct testimony you said one of
9 the people you would have most liked to speak to is SF Tzou.
10 Is that right?

11 A. Yes, SF Tzou, because he wrote some pretty interesting
12 documents or prepared some pretty interesting documents. And
13 I'm not exactly sure, but from what I could discern, he was the
14 assistant or -- I guess assistant VP of advanced technology
15 development. And so he's actually in an excellent position to
16 understand what was the technology that had been developed at
17 UMC in the logic area, and then he was also assisting in
18 Project M. So he would have also been able to understand how
19 that would have transferred over.

20 So this was just one name that stuck in my head. I didn't
21 keep sort of a list of a cast of characters. So I can't say,
22 but if I reviewed the documents, I could say, gee, these are
23 maybe the top five people I would love to talk to.

24 Q. Is one of the reasons you would have liked to talk to
25 SF Tzou that he participated or appears to have participated in

1 those December 2015 meetings?

2 A. I wasn't as concerned about the December 2015 meetings,
3 but I suppose that could have been very interesting as well
4 because certainly that would -- I would also understand kind of
5 how UMC was maybe leveraging their knowledge in -- or
6 experience in semiconductor manufacturing technology in the
7 December 2000 -- you know, the early -- the end of 2015 and
8 early 2016 time range, yes.

9 Q. Would it have been helpful to understand maybe why that
10 Micron -- those Rexchip -- that Rexchip process flow was
11 inserted in this December 7 meeting minutes?

12 A. Certainly. But I don't know if he was involved in that.

13 Q. Now, I want to talk a little bit about Dr. Dyer's
14 Demonstrative A. I think when we were talking about that
15 yesterday, there might have been some confusion about what he
16 was trying to show or at least how it was being spoke about.

17 Do you understand that in Dr. Dyer's Demonstrative A, he's
18 really focused on trying to show similarities of the entire
19 sequence of steps?

20 A. Could you be more clear about what you mean by the entire
21 sequence of steps? Or do you mean the entire sequence of steps
22 within the entire process flow? the entire sequence of steps
23 within a module? the entire sequence of steps within a
24 submodule?

25 Q. Well, let's start with the first one. Let's just say

1 looking across the entire sequence of steps of the entire
2 process flow.

3 Did you understand that Dr. Dyer's primary concern in
4 creating this document was to show similarities across the
5 entire process flows across these various points in time?

6 **MR. SLOAN:** Objection, Your Honor. Vague and
7 ambiguous.

8 **THE COURT:** I'll overrule.

9 But if you don't understand, just say so.

10 **THE WITNESS:** I'm not exactly sure what he was trying
11 to show, but I had to take what he showed on face value.

12 **BY MR. HUNTER:**

13 **Q.** And maybe we can turn to -- did you review Dr. Dyer's
14 disclosure document?

15 **A.** I don't know if it was his. It was the Government's
16 disclosure document, and I -- I'm -- yes, I did review. And
17 I believe there were two of them; so I don't know which one
18 you're referring to.

19 **Q.** Yeah. I'm thinking of the first one, which was,
20 I believe, July 2021.

21 **A.** Something like that, yes.

22 **Q.** I was at the beach when we had to finalize that. So I
23 remember the date, unfortunately.

24 **MR. HUNTER:** If we could pull that up.

25 Your Honor, we put it in your binder as Exhibit 1547, but

1 it's marked as an exhibit. We won't be moving to admit it.

2 THE COURT: Pardon me. What did you say about
3 admitting it?

4 MR. HUNTER: P1547.

5 THE COURT: Yes. Did you say you are moving it in?

6 MR. HUNTER: No. Just using it for cross-examination,
7 Your Honor.

8 BY MR. HUNTER:

9 Q. And, Dr. Yang, if we could look at page 21.

10 A. Yes.

11 Q. And do you see in that major Bullet E, it says,
12 "Comparison of Micron process flows to Project M process flows
13 over time"?

14 A. Yes.

15 Q. Does -- that essentially is what Exhibit A was meant to do
16 in your understanding; is that right? Compare the Project M
17 process flows to Micron process flows over time?

18 A. Could I review this, and then could you repeat the
19 question.

20 Q. Sure. Go ahead.

21 A. I just want to make sure I answer you fully and
22 completely.

23 Q. Absolutely.

24 (Pause in proceedings.)

25 THE WITNESS: Okay. So if you could repeat the

1 question again. Thank you.

2 BY MR. HUNTER:

3 Q. Does this subsection appear to be describing the same
4 comparisons that are represented in Dr. Dyer's Demonstrative A?

5 A. Yes. It says that he's going to disclose some
6 comparisons.

7 Q. And let me just read part of it. It says, "Dr. Dyer will
8 present those comparisons at trial via demonstratives that
9 compare Micron's process technology steps, sequences, recipes,
10 and tools to the Project M process flow on a step-by-step
11 basis."

12 Do you see that?

13 A. Yes.

14 Q. And then I want to just move down in that same paragraph
15 slightly. Actually, it's the very next sentence.

16 It says, "Those comparisons will show how the Project M
17 implementation of Micron's process evolved over time in a
18 predictable, logical way. Dr. Dyer will testify that, by the
19 time the Project M process flow was finalized in September
20 2018, the overall combination of process steps and the sequence
21 of those steps, as the Project M team originally copied them
22 from Micron's document, was largely intact for key process
23 modules."

24 When you read that, do you understand the disclosure to be
25 talking about the overall combination of process steps and the

1 sequence of those steps? Does that refer -- is it fair that
2 that refers to the entire process sequence?

3 A. I think the key here is that it says he was going to make
4 the comparison to Project M process flow on a step-by-step
5 basis. And I think his Exhibit A -- I'm not sure if it's
6 called Exhibit A or whatever, but that big red chart, that was
7 actually done on a submodule-to-submodule basis.

8 And I believe that my understanding is the next one, which
9 was Exhibit B, was then doing the comparison on a step-by-step
10 basis, which -- where he was using his definitions of
11 submodules. And so when the comparison was done on a
12 step-by-step basis is, I believe, in Exhibit B. And so it's
13 hard to say if it's the whole sequence because the step-by-step
14 basis was done on the submodule basis, the module comparison,
15 and the submodule comparison was done in A.

16 So I just wanted to be clear about which level we're
17 talking about because it's important.

18 Q. And I think Dr. Dyer testified that his Demonstrative B,
19 which showed that the step by step was kind of the work that he
20 performed to reach the conclusions in Demonstrative A. Is that
21 your understanding?

22 A. I'm not sure if it's work that was performed, but I think
23 that is the step-by-step comparison that is talked about here.

24 Q. Right. That step-by-step comparison in Demonstrative A
25 fed his conclusions which were then summarized in

1 Demonstrative A. Is that your understanding too?

2 A. Okay.

3 THE COURT: At some point I just want Demonstrative A
4 on the screen. It doesn't have to be now by any means, but it
5 goes back to the question I asked the witness earlier. I want
6 to make sure that the terminology and what people are talking
7 about is really the same thing. And it's not clear to me at
8 the moment that it is.

9 MR. HUNTER: Sure. Your Honor, it sounds like you
10 might have some questions now. So we can put that up on the
11 screen.

12 THE COURT: Okay. If you just look, Dr. Yang, over at
13 the far left column.

14 THE WITNESS: Yes.

15 THE COURT: There's a series of -- would you call
16 those steps? And I'll just name a few: pad oxide, ZL
17 marks -- I'm not going to read them in order necessarily
18 because the Government was concerned about that -- anneal,
19 trench etch. What noun are you giving to those items?

20 THE WITNESS: I believe that even Dr. Dyer has called
21 those submodules.

22 THE COURT: You're calling -- okay. And so you're
23 accepting --

24 THE WITNESS: I'm accepting.

25 THE COURT: -- those are submodules?

1 **THE WITNESS:** Yes.

2 **THE COURT:** Now, they appear in a vertical list in a
3 particular sequence. So, for example, trench etch, it comes in
4 somewhere, not at the top, not at the bottom, but somewhere in
5 middle. And it's my understanding that Dr. Dyer is saying
6 that, for the Project M final transmission of -- I don't know
7 if I want to say "final," whatever the one was that first went
8 over to Jinhua, for example.

9 But, anyway, in that transmission, that these submodules
10 were in the exact same sequence in both the UMC's delivery
11 document and in the Micron process flow. Is that your
12 understanding, Mr. Hunter, of what he was saying there?
13 Because he put them in a particular order, and I was trying to
14 determine if he just did that or, from Dr. Dyer's standpoint,
15 this is how both of those documents listed these submodules.

16 **MR. HUNTER:** Your Honor, it's kind of both, I think.

17 It is how all the documents had the submodules in order,
18 but Dr. Dyer's analysis and how he reached the conclusions of
19 whether to code something red or gray was by looking inside
20 those submodules.

21 **THE COURT:** I understand. That's way over in the
22 diagram. It's not in that first -- first column, is it? In
23 other words, he's got the items down here, the submodules.
24 That's the sequence of submodules. Then he looks over to see
25 how somebody was going to do whatever it was that constitutes

1 the submodule.

2 Okay. So when this witness says that he agrees that the
3 steps that someone used in sequence, it would be exceedingly
4 unlikely that two different companies would have the steps in
5 the exact same order, I'm trying to determine whether, when he
6 says steps, he's talking about the far left column or he's
7 talking about something else. And I'm not sure what the
8 something else is since the far left column is apparently
9 dictating these other entries as we go across.

10 So I don't know if this can be cleared up or not by the
11 witness, but I'd like him to give it a shot. Okay?

12 **THE WITNESS:** May I answer?

13 **THE COURT:** Yes.

14 **THE WITNESS:** Yes. So it's been -- it's my opinion
15 that the modules are well known. And that's been admitted. So
16 that's on the far left column, Column A, and those sequence of
17 modules is well known.

18 **THE COURT:** Okay. So that's one thing I was already
19 confused about.

20 **THE WITNESS:** Okay.

21 **THE COURT:** Okay.

22 **THE WITNESS:** So that's --

23 **THE COURT:** Just a minute.

24 Okay. So, one, doing these things is well known. That
25 was your first statement. And, two, the order in which you do

1 that, chronologically or whatever, that or the sequence, that,
2 you say is well known also.

3 In other words, everybody sort of puts these in the order
4 they're in. So when the Government was concerned about reading
5 those in the exact order they're in in the list, that was not a
6 well-founded concern?

7 **THE WITNESS:** They -- so I believe they do have a
8 concern if I start to speak at the level of steps.

9 **THE COURT:** I'm not in steps; I'm in submodules.

10 **THE WITNESS:** Right.

11 **THE COURT:** He keeps trying to go over. I'm trying to
12 stay in one column and understand what's going on here.

13 **THE WITNESS:** Well, I think that their concern maybe
14 is at the level of submodule and step.

15 **THE COURT:** Well, they didn't say that. They didn't
16 want, for example, you or somebody else reading the submodule
17 items in the order that they appear here.

18 **THE WITNESS:** I'm sorry. But my recollection is they
19 didn't want me to read the steps in the order that they appear.

20 **THE COURT:** Well, what do you mean by steps? Which
21 column are you looking at? We've got a list up here. Which
22 column are you looking at? The far left? The one immediately
23 next to it? The one next to that?

24 **THE WITNESS:** It's very confusing. I understand. But
25 it's actually in his Exhibit B is where the steps are listed.

1 **THE COURT:** Well, I thought we were talking about this
2 exhibit at one time. And it may also have been in connection
3 with B. But in any event, B is how he arrived at the color
4 coding in the farther right columns.

5 Okay. The minute that you're in the first column that's
6 not -- that's marked 8/24/15 and then going across, we're
7 looking at what he is saying is the way that somebody did
8 something, hence one step, two steps, what temperature,
9 whatever.

10 And then to -- because he didn't have room to put all the
11 detail of that brief description, he's got it in B.

12 **THE WITNESS:** Yes.

13 **THE COURT:** Correct. All right.

14 But I was just looking -- and I'm going to repeat this so
15 we're clear, because your opinion is submodules are known and
16 the sequence is known. And I wasn't sure what you were using
17 for that purpose. I originally thought that -- and this may be
18 Dr. Dyer's opinion. I'm not sure -- but that the sequence of
19 the submodules was a secret.

20 And if that was his opinion -- I'm not sure it was
21 because, at this point, I'm not sure what we were looking at at
22 a particular time. But your opinion is everybody knew those
23 things can be done and everybody did them in the same sequence?

24 **THE WITNESS:** It is my opinion that the sequence of
25 the submodules to implement a module are also well known.

1 **THE COURT:** Also on top of what?

2 **THE WITNESS:** The modules are well known.

3 **THE COURT:** Oh, okay. Then you don't have to say
4 "also."

5 **THE WITNESS:** Okay.

6 **THE COURT:** Okay. All right. Now, we got that
7 squared away.

8 So then when somebody looks over and decides whether
9 someone is doing something the same way, aren't they already
10 doing something that comes under the submodule heading at the
11 same time but doing it differently?

12 Okay. So are we really talking sequence or are we just
13 talking substance at that point?

14 **THE WITNESS:** That's what I've been trying to answer
15 Mr. Hunter accurately with his questions. So I'm not sure
16 which level -- at the step level or at the submodule level.

17 **THE COURT:** Okay. Way back in your testimony at some
18 point when you were asked about kind of your conversation with
19 defendant's counsel and you were asked about did anybody ask
20 you to offer an opinion about the sequence of -- and I think it
21 was steps that the question posed, you said, no, nobody even
22 bothered to do that because it's just so obvious. You couldn't
23 possibly have every step.

24 What did you mean then?

25 **THE WITNESS:** So at the level below the submodule, you

1 have steps. It's highly -- yes. So it's highly unlikely that
2 people will come up with exactly the same step details.

3 **THE COURT:** Okay. Okay. I'm sorry. I didn't mean to
4 interrupt you. Keep going. I'm just -- I'm following you.
5 Keep going.

6 **THE WITNESS:** It's highly unlikely they have the same
7 details to do the same submodule. And the way I like to
8 describe the submodule is it's performing some task necessary
9 to build the substructure that's defined by the module. And so
10 there are many ways to do that task.

11 **THE COURT:** And some of it is not in any particular
12 sequence? This is why I might have been thrown off a little
13 bit.

14 Well, for example, if it said two step -- sometimes it
15 just says one step, and I took that, then, not to be a sequence
16 of steps, if it just says one step and everybody did one step.
17 And then I was just looking did they use the same temperature?
18 Did they hammer it in with the same force or whatever?

19 Okay. Do you get into a sequence of steps within the
20 submodule, okay, always? Is there always multiple things going
21 on, or can you have just one step like is being recorded here?

22 **THE WITNESS:** Sometimes the submodule could be just
23 one step, but -- if it's a really, really -- what you might
24 call substantial and crucial step. But many times the
25 submodule includes a bunch of sort of housekeeping things, like

1 cleaning the wafer, preparing the wafer. And so because those
2 aren't so consequential for somebody to understand, they
3 sometimes group them together and say that's the submodule.

4 **THE COURT:** Okay. Is the order or sequence in which
5 somebody is doing cleaning something that's actually a secret?
6 At this point you were saying everybody has always got to clean
7 after they do -- I forget what it was, but something.

8 **THE WITNESS:** Yes. Well, it's well understood that
9 you need to do a clean after certain steps. It's well
10 understood you need to remove certain layers after certain
11 steps. It's well understood that you need to provide some type
12 of buffer layer before certain steps.

13 **THE COURT:** Okay. But when you say that -- in a
14 particular module -- let's just take -- I don't know -- anneal.
15 Okay? I don't remember whether you said there were multiple
16 things that you had to do in that particular submodule. Are
17 there multiple things you have to do in that particular
18 submodule?

19 **THE WITNESS:** I'm just going to recall off of memory
20 from what Dr. Dyer referenced here as the anneal submodule in
21 the particular AA module. As I recall, it's just one step.

22 **THE COURT:** Do you happen to remember if there was one
23 of these things -- whether it was pad oxide, trench etch,
24 whatever -- something either in that module area -- the active
25 area module or maybe in the silicon task where there was

1 something that had multiple steps in order to accomplish or
2 complete that submodule?

3 **THE WITNESS:** Yes. In pad oxide in particular, pad
4 oxide incorporates a clean before you do the pad oxidation. So
5 there's two steps.

6 **THE COURT:** But it's an obvious two step, from what
7 you're saying?

8 **THE WITNESS:** That one is fairly obvious, yes.

9 **THE COURT:** Well, if you had one -- can you think of
10 any one you looked at that didn't have an obvious step
11 progression like do a clean -- or clean it, do it, clean it up,
12 do whatever? Cleaning sounds like something you just make sure
13 before you go on to something that you've got all the debris
14 out of the way.

15 **THE WITNESS:** Yes.

16 **THE COURT:** Okay.

17 **THE WITNESS:** There is one particular one. So, for
18 example, STI fill. So after you've made those nice trenches,
19 you need to fill them up with a -- some type of insulator.

20 **THE COURT:** Okay. I see it here. Okay.

21 **THE WITNESS:** It's Number 12.

22 **THE COURT:** Well, I see it under "active area" under
23 "trench etch."

24 **THE WITNESS:** So there's many ways to fill it. And
25 those trenches are typically filled with multiple layers. So

1 you would necessarily see there would be multiple steps in the
2 STI trench -- STI fill. So you might deposit oxide first, then
3 you might deposit nitride, then you might deposit oxide again.

4 **THE COURT:** Okay. Is that a choice?

5 **THE WITNESS:** Yes. And that would be a choice as far
6 as which layers, how much deposit. All those different things
7 would be there.

8 **THE COURT:** Okay. Now, the how much is not the
9 sequence; the how much is what I'll call substance. All right.

10 If you're talking about sequence, just the sequence in
11 which you're going to stick these things on, different metals.
12 Okay? Then people can do it differently. And they may guard
13 that as a secret, the order in which they do them. And you're
14 saying that wouldn't be something that would be well known.

15 **THE WITNESS:** That is something that's readily
16 discernible.

17 **THE COURT:** By reverse-engineering?

18 **THE WITNESS:** Yes.

19 **THE COURT:** Well, then, when you say there were steps
20 that you couldn't -- that just on the natural, it couldn't
21 possible be all the same, what were you talking about?

22 **THE WITNESS:** I was talking about, for example,
23 there's a group of steps here. And it's called SADP.

24 **THE COURT:** Do we know where that is? Oh, I see it.
25 I see it. It's near hard mask.

1 **THE WITNESS:** Right. And that stands for self-aligned
2 double patterning. And as you might recall, I walked you
3 through an example of that with the blue sticks.

4 **THE COURT:** Yeah.

5 **THE WITNESS:** And those blue sticks, nobody knows if
6 those were blue sticks or orange sticks because only thing that
7 was left were the trenches.

8 **THE COURT:** Okay. Are you calling that sequence as
9 opposed to what I might say as something other than -- I'm
10 thinking of sequence as time, when in the process something is
11 done, not what the details of that doing is beyond the time.

12 **THE WITNESS:** A very good way to think about that is
13 the detail that you're thinking about is probably more at the
14 recipe level.

15 So in order to execute that particular step, we need to
16 have certain recipes there for exact -- so how do I determine
17 what kind of silicon nitride I want? That's determined at the
18 recipe --

19 **THE COURT:** Well, again, I'm going to interrupt you.
20 You used the word sequence. Sequence is when at a particular
21 time you do something. Okay? And there are occasions when
22 that something is going to vary. All right? But it's still
23 going to be characterized as -- I don't know -- the same thing
24 as somebody else is doing. Okay? But it's going to be
25 somewhat different.

1 If you want to, say, put metal down, okay, whatever it is.
2 And one person could put one metal; one person could put
3 another. Okay. And the put-metal-down idea could be both of
4 them doing it step number -- well, at Step Number 3, let's say.

5 All right. And then they do it differently. Are you --
6 in the sense of what they're putting in. So you would call
7 that not doing that in the same sequence, or would you say it's
8 just they're doing it in the same sequence but they're using a
9 different substance?

10 **THE WITNESS:** I would say they would be doing it in
11 the same sequence because it's Number 3. But I'd say it's a
12 different substance, a different recipe.

13 **THE COURT:** Okay. So when you say that someone
14 couldn't possibly do all the steps in the same sequence as
15 somebody else, you know, one company or another, you're not
16 looking at the submodule column; you are looking at, I guess,
17 any column to the right of the submodule column and then
18 breaking down where those various processes -- or how those
19 various processes are done. And some people may do put metal
20 as Number 1 and somebody could do put metal as Number 3, and
21 then there would be a different sequence?

22 **THE WITNESS:** There could be a different set of
23 sequences, different types of sequences, to implement the same
24 submodule.

25 **THE COURT:** Okay. But when you start saying different

1 types of sequences, what do you mean?

2 **THE WITNESS:** One is aluminum; one is copper. That
3 would be a different --

4 **THE COURT:** Okay. So essentially you're really taking
5 it to the final level when you say it's unlikely everyone would
6 do everything exactly the same?

7 **THE WITNESS:** Yes.

8 **THE COURT:** Okay. You're looking as far down the
9 road, then, as you can get for that opinion. I'm not being
10 critical of it; I just want to determine where in the process
11 you are.

12 **THE WITNESS:** Right. I don't think it's that far down
13 the road because it's just at the step level. But as you might
14 recall, there's the recipe level -- full recipe level, and then
15 the machine parameters level. And so this is kind of at -- do
16 you remember the demonstrative that I had?

17 **THE COURT:** Yes, I do, but I didn't know exactly what
18 you were putting into each of those --

19 **THE WITNESS:** Right. So it's at that middle level, at
20 the step level. I said it's unlikely at the step level.

21 **THE COURT:** Right. And then I was trying to find out
22 from you what are you calling a step. Okay?

23 And you are -- and I'm not sure that we've got this clear;
24 but as I understand it, if you want to call submodules, you
25 take a submodule, you look at the -- what is going into

1 accomplishing that submodule. Okay.

2 THE WITNESS: That's a step.

3 THE COURT: And you could --

4 THE WITNESS: Those are steps.

5 THE COURT: You could do various things, but they're
6 at a certain level of -- you know, sort of a higher level,
7 then, as you keep going along.

8 Okay. But at that level where you're sort of saying,
9 okay, we're going to -- we're going to cook this and then we're
10 going to cool it off and then we're going to do something and
11 then we're going to lay something down, you could move those
12 around and be different?

13 THE WITNESS: You can move them around a little bit.
14 You can't move them around completely independently; but yes,
15 you can move them around.

16 THE COURT: Well, you said that it would be unlikely
17 that all of those steps would be exactly in the same sequence.
18 And I assume you're talking about a particular submodule.

19 THE WITNESS: Yes.

20 THE COURT: Okay. So for some of the submodules,
21 everybody would be doing the same step sequence?

22 THE WITNESS: Same step sequence, but the details of
23 the steps might be different.

24 THE COURT: But that's at a different point --

25 THE WITNESS: Right.

1 **THE COURT:** -- in your analysis.

2 **THE WITNESS:** Yes.

3 **THE COURT:** Okay. And for others, there's more
4 complicated things going on. And if there are perhaps multiple
5 steps at that level, then you would say it's not likely that
6 every single one of those would be done exactly the same by
7 everyone?

8 **THE WITNESS:** Yes.

9 **THE COURT:** And is that, in your mind, applying to all
10 the ones that are here? In other words, saying collectively
11 you couldn't possibly get -- I don't know. How many steps do
12 you think we'd be talking about there? Is that where it's the
13 500 or 1,000?

14 **THE WITNESS:** Yes.

15 **THE COURT:** Okay. And it's your opinion that, for any
16 given submodule that has a lot of steps, it would be unlikely
17 that people would necessarily do those exactly the same; that's
18 not in the public domain? Or are you saying, if you took a
19 thousand steps, it's unlikely you'd get a thousand
20 correlations?

21 **THE WITNESS:** I don't think I've given an exact
22 opinion on that.

23 **THE COURT:** Okay.

24 **THE WITNESS:** But I was asked. And my understanding
25 is what Mr. Hunter asked me was for the whole sequence.

1 **THE COURT:** Okay.

2 **THE WITNESS:** And I said, for the whole sequence, it's
3 unlikely.

4 **THE COURT:** Okay.

5 **THE WITNESS:** Certainly unlikely.

6 **THE COURT:** All right. So if we were looking at
7 recipes for cooking -- okay. All right. And so you might have
8 in the submodule area you have, maybe you have if you had to
9 make something. Shop -- okay. Shop, store, take-out, turn on
10 oven, or whatever -- I don't know -- something that's pretty
11 broad.

12 Okay. Then you get over to the steps. And let's say
13 that -- I'm not sure if I can do it and make it work because
14 I'm really not a cook. So -- I shouldn't have used cooking.
15 So I'm not sure if -- how I can do a broad enough one to know.

16 I think I won't try and do it because it may be confusing,
17 but I'm gathering where we are in the chart. That's why I
18 wanted to go back to the demonstrative because, otherwise, if I
19 can't use that as a starting reference, it was harder for me to
20 understand.

21 So okay.

22 Now, I may have confused this more, but not for me. Okay.
23 So I don't know. It's almost 10:30. Do you want to break here
24 or would you like to keep going and then find a better place to
25 break?

1 **MR. HUNTER:** This is a good time for a break, Your
2 Honor.

3 **THE COURT:** Okay. Then why don't we just break till a
4 quarter to and we'll come back.

5 Thank you, Dr. Yang.

6 **THE WITNESS:** Thank you.

7 **THE CLERK:** Court is in recess.

8 (Recess taken at 10:29 a.m.)

9 (Proceedings resumed at 10:46 a.m.)

10 **THE CLERK:** Remain seated. Come to order. Court is
11 back in session.

12 Please be seated.

13 **THE COURT:** All right. Back to your questions,
14 Mr. Hunter.

15 **MR. HUNTER:** Thank you, Your Honor.

16 **BY MR. HUNTER:**

17 **Q.** Dr. Yang, so this is probably a good time to look at some
18 of the submodules on Dr. Dyer's Demonstrative A and then the
19 corresponding steps in Demonstrative B.

20 So I want to go through the ones you went through
21 yesterday, but since we were speaking about -- sort of there's
22 simple ones that have, like, one step, and then there's some
23 that have a lot more steps, I wanted to pull up one that had a
24 lot more steps.

25 And if we start on -- let's see here -- the capacitor

1 module on Demonstrative A. And the first submodule for the
2 capacitor module is called capacitor stack.

3 Do you see that?

4 **A.** Yes.

5 **Q.** This is one Dr. Dyer kind of coded red to start. And then
6 it looks like he determined in his opinion that there were some
7 mapping to the 110 series from Micron, and then it went back --
8 the Project M went back to the 90 series Micron sequence in
9 Dr. Dyer's opinion.

10 Do you see that on Demonstrative A?

11 **A.** Yes.

12 **Q.** Now, if we go to that submodule, the capacitor stack
13 submodule in Demonstrative B to see the actual step-by-step
14 comparison -- we can scroll to -- oh, there it is. See the
15 capacitor stack submodule on Demonstrative B?

16 **A.** Yes.

17 **Q.** Now, this one has -- I'll call it -- 18 steps, roughly.
18 Is that right?

19 **A.** Yes, I guess. Yes.

20 **Q.** And if we scroll to the right all the way, the last column
21 that Dr. Dyer included here was called "Comments."

22 And do you understand that column to just -- to kind of be
23 the generic description of what that step is for that row?

24 **A.** Yes. I think that would represent the general
25 understanding of what that step is meant to accomplish.

1 Q. And those -- and your opinion, I think, is that those
2 steps, just the descriptions, are just generic step names that
3 are well known; correct?

4 A. His comments are. You would say that the step names they
5 use are pretty esoteric, weird.

6 Q. Agreed.

7 Now, just going down, it looks like it starts. There's a
8 deposition step followed by two cleans, followed by another
9 deposition, followed by a clean, followed by an anneal. And
10 there is something called CMP.

11 Do you know what that stands for?

12 A. Chemical mechanical polishing.

13 Q. Polishing. Some deposition steps and cleans. And I could
14 keep going. But is that -- did I fairly kind of characterize
15 the beginning sequence of steps for this submodule?

16 A. Yes.

17 Q. And so would this be one of those submodules that, in
18 addition to sort of clean steps, has a bunch of other kind of
19 substantive steps that modify the wafer in some way?

20 A. Well, I believe that these steps are talking -- the
21 important stuff. So let's set aside the cleans because we know
22 that they're just trying to make things as clean as possible.
23 You can understand that they're trying to deposit a stack of
24 materials, yes.

25 Q. Got it.

1 And let's --

2 THE COURT: Hang on just one sec. So which column
3 were you in on B? Because I just moved over here to see where
4 you were reading.

5 MR. HUNTER: Oh, I was looking at the "Comments"
6 column, Your Honor.

7 THE COURT: Right. Okay. So the comments are the
8 kind of substeps there or --

9 THE WITNESS: May I answer?

10 THE COURT: Yes.

11 THE WITNESS: Yes, those comments are Dr. Dyer's sort
12 of interpretation of what that step is actually doing, and
13 I believe that those are fair interpretations of what that step
14 is doing because the names of the steps are either in Chinese
15 characters or, even worse, they're in technological speak,
16 which only a technical expert can understand. But he's sort of
17 summarized kind of the generic objective of the step minus kind
18 of some of the key details that are in the step details if you
19 were to read the detail -- the details of the step in more
20 detail that are on the left.

21 THE COURT: Okay. Thank you.

22 BY MR. HUNTER:

23 Q. Now, let's go to the ones that you discussed yesterday. I
24 think the first one was the pad oxide submodule, which is in
25 the first tab, the active area tab, of Demonstrative B.

1 A. Okay. So we're going all the way to the beginning of the
2 process flow.

3 Q. That's right.

4 A. Okay.

5 Q. And there, there were those two steps. One is a clean,
6 the first one, and then it's followed by oxidation; is that
7 right?

8 A. I think that's a good general characterization, but if you
9 actually look at kind of the detail esoteric wording for
10 Rexchip versus Project M, there's some additional details.
11 But, yes, I accept your characterization.

12 Q. Now, we can use those Rexchip codes -- those are those
13 kind of esoteric codes, 1F.WWA10 followed by another one.
14 Those are a good way to look up codes in some of the other
15 Micron documents. Is that fair? Or to look up steps.

16 A. Yes. Those are the reference numbers to the codes. I'm
17 just not sure if they were Micron documents or Rexchip
18 documents, but that's all. But, yes, that's a good way to look
19 up the details.

20 Q. Got it.

21 MR. HUNTER: If we could pull up P0482, please.

22 This is the untranslated version of the meeting minutes
23 file, Your Honor, that's been admitted. I'm pulling up the
24 untranslated version just because those Chinese characters
25 sometimes -- sometimes you get more familiar with looking at

1 them, even though you don't know what they mean. But I think
2 that will illustrate the kind of match between the documents a
3 little better.

4 **THE COURT:** Okay.

5 (Pause in proceedings.)

6 **BY MR. HUNTER:**

7 **Q.** If we scroll over to the 25-nanometer 4G3D flow tab.

8 And, Dr. Yang, this is the tab -- I think you testified
9 yesterday you agree this was Micron or Rexchip information that
10 had been copied in here and then someone added some columns.
11 Is that fair?

12 **A.** Yes. I believe you're representing my testimony
13 correctly, yes.

14 **Q.** And if we look at Rows 8 and 9, there we see those same --
15 Ms. Bhatia, could you just maybe expand Row A -- Column A.
16 Sorry.

17 You see those same OPER codes that we saw in Dr. Dyer's
18 Demonstrative B; is that right?

19 **A.** Yes.

20 **Q.** And then as we scroll to the right, I think -- keep
21 going -- we'll eventually get to recipe parameters from Rexchip
22 under R1 and under e300 for Elpida.

23 Are those the sort of next level details -- I think you
24 might have called them the key recipe parameters are sort of
25 listed here in Columns R, S -- R through S and V through W?

1 A. Yes, I would agree with you. Those are kind of the key
2 recipe parameters, not quite the full ones, but I think
3 probably the important ones you want to pay attention to.

4 Q. And those ones in those columns are the Rexchip and Elpida
5 recipe parameters. Is that fair?

6 A. That seems to be what the document says, yes.

7 Q. If we scroll back to the left and just keep focusing on
8 those two steps, 8 and 9. In Rows 8 and 9, in the blue
9 column --

10 Scroll to the right a little more, please. A little more.

11 Those blue columns that say "Risk," "Concern," and "Next,"
12 those are columns that someone added to the Micron document; is
13 that right?

14 A. Yeah. Yes. Well, I don't know who; but, yes, somebody
15 seemed to have added them to the document, yes.

16 Q. And for those, under "Next" -- well, first of all, both of
17 these are rated a Risk 2 according to the document; is that
18 fair?

19 A. That's what it says, yes.

20 Q. And then it lists the concern as process recipe. Is that
21 fair?

22 A. Yes.

23 Q. And then under "Next" it says -- for both steps in that
24 submodule, it says, "New recipe condition for UMC to consider
25 apply current condition."

1 Is that fair?

2 A. Yes.

3 Q. Does that seem to indicate to you that UMC was going to
4 have to do something new with regard to the kind of recipe for
5 that step or those two steps?

6 A. I mean, I'm just going to take the comment for face value.
7 I don't know who wrote it and what they were thinking. But the
8 comment on face value, you would look at it and you would say,
9 this is a very standard RCA clean. But maybe we'll use a
10 different one, a new one; maybe we'll use the same one. I
11 think that's kind of reflected there.

12 But, for this particular step, I would say that it's a
13 pretty standard RCA clean.

14 Q. And if we go over to the process in the green, it looks
15 like those green columns are additional -- maybe we can scroll
16 over to let you see them all.

17 Those green columns, you understand, were added to the
18 Micron document. Is that fair?

19 A. I think -- I'm not sure. I'm not sure if they were added
20 to the Micron document or if they were in the original Micron
21 document. I can't tell you -- I can tell you what they are,
22 though.

23 What those are are the RCA clean is consisting of two --
24 they call it SC1 and SC2, and I believe here they're telling
25 what the relative ratio of the acids that you want to use in

1 the chemical clean. That's all.

2 Q. Got it.

3 And is that -- are you getting that -- like, that
4 information about the acids from the process column?

5 A. Yes.

6 Q. Is that --

7 A. Yes. That's the process column. And it's just because I
8 know the context of the RCA clean because it's so well known,
9 and there are ratio'd assets, there are temperature that needs
10 to be done, and there's a time. So that's seeming to provide
11 some sort of key details. I'm not sure if they added it or
12 who -- or if it was in the original. I just can't recall. I'm
13 sorry.

14 Q. That's fine.

15 Now, I'm going to ask Ms. Bhatia to maybe do a little bit
16 of an Excel trick.

17 If you could just move these into the right so we can
18 still see the process row and have the process column -- I'm
19 sorry -- be all the way on the left of the screen. And keep
20 going to the green processes all the way to the left. And then
21 maybe you could just hide the intermediate columns all the way
22 up to the Rexchip recipe so that we could put the two side by
23 side.

24 So now on the screen you can sort of see the Column J
25 green process and the Column R Rexchip key recipe parameters on

1 the screen kind of at the same time. Is that fair?

2 A. Yes.

3 Q. And it looks like here, there's some differences in the
4 green recipe and the Rexchip recipe. Is that fair?

5 A. Yes. A little bit hard to compare.

6 Q. Yeah. It's like a little bit different formatting.

7 A. Yes.

8 Q. But the difference in those recipes, would you say it's
9 fair to characterize that as consistent with the comment that
10 we saw earlier about new recipe condition for UMC?

11 A. Just with the caveat I don't recall where that green
12 column came from.

13 But if I take your representation that it was added, then,
14 yes, it would seem to reflect that they're changing some
15 parameters, like I don't know which one is referring to
16 45 degrees, which one is referring to 40. But there seem to
17 be, you know, 300 seconds is five minutes, but I'm not sure
18 which is which. It's a little bit hard to compare.

19 Q. Agreed.

20 A. Right.

21 Q. Now, let's look at the trench etch submodule. Maybe we
22 can just go view that one on Demonstrative A real quick. And
23 it's in that -- at the top of that active area modules. Trench
24 etch, this is the one where Dr. Dyer, in his opinion, kind of
25 coded it red for the initial Project M and then red/gray after

1 that with an indication in the one step and two step and three
2 steps. Do you see that?

3 A. Yes.

4 Q. Now, if we can go to the corresponding submodule in
5 Dr. Dyer's Demonstrative B. And I think Row 46 is where -- of
6 Demonstrative B is where the trench etch starts.

7 And so here I think, as you discussed yesterday, the
8 Micron or Rexchip 25-nanometer flow had two steps, really an
9 etch followed by a clean. Is that fair?

10 A. That's fair. But I'd just like to point out, this is
11 actually a very interesting step because they're etching the
12 hard mask in a silicon trench at the same time. So this is an
13 example of sometimes why it's one step but sometimes people
14 might consider it two steps. But it's one machine that does
15 the two things.

16 Q. Got it.

17 A. That's just sort of a side note. Sorry.

18 Q. Nope.

19 If we can just scroll all the way to the right.

20 And we see Dr. Dyer's comments. He has that sort of
21 summary-level general description of steps. So the first one
22 is some kind of etch followed by strips, an etch -- and that's
23 really summarizing what each row represents. Is that fair,
24 just generally?

25 A. Kind of. But you should be aware that many of those

1 steps, step descriptions don't appear in some of them where
2 they're blank. So if they're skipped, those steps weren't
3 performed.

4 Q. Got it.

5 A. Yes.

6 Q. And so just to be clear on when Dr. Dyer in that exhibit,
7 Demonstrative A, showed one step, two step, and three step, is
8 it your understanding that, for example, if we take Column E
9 where it says December 2015, he said one step because it's --
10 is it your understanding because it's one etch step? Is that
11 your understanding of why he put one step there?

12 A. Yes. He's applying the same sort of analysis that he
13 applied to the Rexchip; and so it's fair to apply it to the
14 Project M at that point. Where he called that a one-step, he's
15 calling this is a one-step. So that's a perfectly legitimate
16 and fair comparison, I think. You're comparing apples to
17 apples.

18 Q. Got it.

19 In the Project M February 2016, he has sort of an etch
20 step followed by a strip step, and then there is a gap because
21 he's making room for what he's trying to compare with the
22 subsequent Project M flows. But then you get back to, again,
23 that trench etch and clean step.

24 And so there's two steps within that row -- Column F that
25 are etch steps. Is that your understanding of why he said that

1 that was a two-step in his Demonstrative A?

2 A. Yes. Yes. And that's a very legitimate comparison, yes.
3 So he's fairly represented that he's -- you're etching the hard
4 mask kind of in a separate machine, yes.

5 Q. Got it.

6 And same thing for Columns G and H. He was representing
7 there that there's three etch steps that are performed now.

8 Is that fair?

9 A. Yes.

10 Q. Now, if we go to -- back to Exhibit 482, the meeting
11 minutes file. And to be fair, maybe go back to Demonstrative B
12 real quick.

13 If we look at the -- scroll to the left and look at the
14 Micron -- or Rexchip codes, the first one is 1F.EEG10 followed
15 by another code.

16 Do you see that?

17 A. Yes, yes.

18 Q. If we go look those codes up in the meeting minute file,
19 P482, I believe those are on Row 29 and 30.

20 Did I get the right step rows there, Dr. Yang?

21 A. It looks like it, yes.

22 MR. HUNTER: And, Ms. Bhatia, could you just unhide
23 the columns that you previously hid.

24 BY MR. HUNTER:

25 Q. So focusing in now on Rows 29 and 30 of the Excel sheet,

1 if we look at how the "Risk" column that the Government alleges
2 someone added, the risk for those two steps was coded 3 and 2.
3 Is that accurate?

4 **A.** I'm just -- I just -- I can't remember the second step,
5 but certainly the first step is coded red, yeah. I just don't
6 remember the second step.

7 **Q.** I don't either.

8 Ms. Bhatia, could you just go back to exhibit --
9 Demonstrative B and confirm that it's --

10 **A.** WWM20. Sorry.

11 **Q.** No, I get it.

12 And so we're looking at -- in Rows 29 and 30 we're looking
13 at the same two steps; is that right?

14 **A.** Roughly, yes. I mean, we're looking at exactly the same
15 two steps, yes.

16 **Q.** And the additional -- the blue rows where the risk was
17 added, it says that the risk was coded 3 and 2 for each of
18 those steps; is that right?

19 **A.** Yes.

20 **Q.** And then, in the next column on M that's called "Next," it
21 says, "To consider next generation process tool for the first
22 step on Row 29." Is that right?

23 **A.** Yes, that's indeed what it says.

24 **Q.** And on the next one it says, "Project 2, discuss
25 batch/single-wafer strategy." Is that right?

1 A. Yes.

2 MR. HUNTER: And, Ms. Bhatia, if you could just,
3 again, hide the columns all the way up through the recipe
4 parameters for Rexchip so we can -- you can hide those two blue
5 columns as well.

6 BY MR. HUNTER:

7 Q. And again focusing on Row 29 and 30, under R1 is where you
8 could find the Rexchip kind of key recipe parameters; is that
9 fair?

10 A. Yes.

11 Q. And, again, these are coded red under the green column
12 that the Government asserts was added. Those are colored red
13 and yellow. And it's kind of hard to directly map the green
14 process column to the Rexchip process column. Is that fair?

15 A. A little bit, but I guess the -- yes, it's certainly hard.
16 But it -- again, the interesting thing is you can see that the
17 recipe consists of, well, five steps? Six steps? I don't
18 know. So it's kind of a rather sophisticated multiple-step
19 recipe.

20 Q. Um-hmm.

21 A. So recipes can have steps within them. So it's such a
22 crazy world.

23 MR. HUNTER: Now, Ms. Bhatia, if you could unhide
24 those columns that you hid. And back on Row 29, if we can look
25 at the risk.

1 **BY MR. HUNTER:**

2 **Q.** And so the concern here was -- that was added, it appears,
3 was tool model and to consider next-generation process tool.
4 Is that -- that's accurate; right?

5 **A.** Yes, that's what the document says.

6 **Q.** In your opinion, could that -- if it was UMC who added
7 this information, could those risks have come to fruition in
8 what we observed in the Demonstrative B where UMC had to go
9 from, you know, one step to three steps? Could that be related
10 to this risk that they were -- may have been worried about in
11 the December meeting minutes?

12 **MR. SLOAN:** Objection, Your Honor. Vague and
13 ambiguous. Compound question.

14 **THE COURT:** Well, there were a couple of questions in
15 the series. So I'll sustain.

16 But you're asking him to kind of speculate about what
17 people were thinking about also, which might be a little bit of
18 a problem.

19 **BY MR. HUNTER:**

20 **Q.** Dr. Yang, I think yesterday, when you were talking about a
21 module, you testified that it could have been that Project M
22 had to move to multiple etches, multiple etch steps because
23 they could have been running into some problems.

24 Is that an accurate summary of what you testified to
25 yesterday?

1 A. Yes. I think I said that, well, why would you go to
2 multiple etches unless you had some kind of problem; right?
3 You'd rather do this in one whack, but you can't do it in one
4 whack; so you have to do to in three whacks.

5 Q. And having problems later down the road in a development
6 is consistent with identifying a high risk for that step early
7 on, isn't it?

8 MR. SLOAN: Objection, Your Honor. Calls for
9 speculation.

10 THE COURT: Is risk something that that's a term used
11 in the industry, or is it -- if it's just idiosyncratic,
12 essentially, then I think the objection probably is well taken.
13 If this is something that's used as a term and -- you might be
14 able to lay some foundation for that.

15 BY MR. HUNTER:

16 Q. Dr. Yang, do you have an understanding of how the term
17 "risk" is generally used in the industry when doing a
18 development of a process for semiconductors?

19 A. I think I've seen the word "risk," and I think I would
20 understand, but I'm not sure that everybody uses the same
21 definition of the word "risk."

22 But I'm happy to provide my understanding of what I think
23 the word "risk" means.

24 Q. Yeah. What is your understanding?

25 A. Yes. So the word "risk" means -- for engineers, would

1 mean uncertainty. So I'm not certain if this is going to work.

2 And so uncertainty can be caused by many things. I'm
3 doing something for the first time. I'm using a machine for
4 the first time. I'm using a different material. I have to use
5 different conditions.

6 And so it seems to me that they're trying to characterize
7 their level of uncertainty because, you know, if you think
8 about it, in general, in a process development, you have to
9 develop 500 steps. They have to be reliable. So you need to
10 be able to reproduce them exactly.

11 So if you're changing something, something -- you want to
12 be sure that you can do it reliably. So there's some risk
13 involved.

14 So I think if you take it as that sort of generic
15 understanding of uncertainty and it's an area that needs
16 engineering development, I think that's a pretty fair
17 description.

18 Q. And with that understanding of risk in mind, assuming that
19 UMC added this risk assessment of Level 3 as a high risk, would
20 high risk mean high uncertainty?

21 A. I would presume, yes. I mean, that's just sort of generic
22 pseudotechnical English.

23 Q. And that high uncertainty could reflect that Project M was
24 concerned that they might not be able to get this particular
25 step to work with one step. Is that fair?

1 A. I'm not sure that -- even if this was UMC, I'm not sure
2 what they -- what was reflected in the fact they thought it was
3 high risk. It is very high risk to change a tool, but there
4 might have been ideas that they were going to change materials.

5 So even if this was UMC -- if this was UMC, my
6 understanding is that UMC actually ended up changing all the
7 previous materials before this. And so their hard mask was
8 different. So there could be a great deal of risk as far as
9 associated with etching a different material. And so it could
10 be reflected in many, many different things.

11 Q. And let's now go to the anneal submodule. This is the
12 one-step submodule, at least one of them, that we reviewed
13 yesterday. That's on -- well, in Dr. Dyer's Demonstrative A.
14 We can just look at it briefly.

15 Do you see that on Row 14, the anneal submodule?

16 A. Yes.

17 Q. That one he coded red, in his opinion, all the way across;
18 is that right?

19 A. Yes.

20 Q. If we go now to Demonstrative B, Dyer's Demonstrative B,
21 and scroll down to the anneal step. And then here on Row 73,
22 it's that single step; correct?

23 A. Yes, that single description.

24 Q. And, again, yesterday I think you were testifying that
25 Micron's step name there doesn't have any recipe information

1 with it in this -- as Dr. Dyer put it in this document;
2 correct?

3 A. Right. I was simply speaking as far as what Dr. Dyer's
4 representing here. I didn't see any other information.

5 Q. Um-hmm. And in Column E, then, there was the Project M
6 step naming. Is that your understanding of the information in
7 Column E?

8 A. Yes.

9 Q. And so that one, that step name, does include, I think you
10 said, some recipe information. Is that right?

11 A. A little bit. I mean, you -- just reading it, you would
12 sort of assume that the temperature for densifying was
13 occurring at 1050 degrees C. And the purpose of this would be
14 densifying. So you kind of also understand what is the purpose
15 of this anneal.

16 Q. And if we scroll over to the right and look at Dr. Dyer's
17 comment, he just said "STI anneal." Is that right?

18 A. Yes.

19 Q. Is that a fair general description of what that step is
20 for each sort of process flow that's represented here?

21 A. I guess so. But if you wanted to be a little bit more
22 complete, you would say it's the anneal of the fill material in
23 the STI. But, yes, sure.

24 Q. Got it.

25 Now, if we can go back to the meeting minutes file, P0482.

1 This is on --

2 **MR. HUNTER:** Well, sorry. Your Honor, I want to make
3 sure we get the step name from Dr. Dyer's Demonstrative B. So
4 if we could go back to that.

5 **BY MR. HUNTER:**

6 **Q.** The Rexchip code for this one is 2F.FFH10; is that right?

7 **A.** Yes.

8 **Q.** And if we go to P0482, I think Row 40 in the meeting
9 minutes has that code. Is that right?

10 **A.** Yes.

11 **Q.** And here, again, it looks like the added rows show a high
12 risk of 3. Is that right for this step?

13 **A.** Yes.

14 **Q.** The concern is process recipe and the comment labeled
15 "Next" is "New recipe condition for UMC to consider. Apply
16 current condition." Is that right?

17 **A.** Yes.

18 **Q.** Now, if we --

19 Ms. Bhatia, if you can just scroll over to the right. I'm
20 sorry. To the left.

21 And the step name that was added here is that 1050 C
22 densify with some Chinese characters?

23 **A.** Yes.

24 **Q.** That's the step name that the Government would say someone
25 added to this document; correct?

1 A. Yes. I'm not sure who added it, but I take your
2 representation.

3 Q. Okay.

4 Now, Ms. Bhatia, could you do the same trick where you
5 hide the columns, starting from K over.

6 And, again, if we can look, we can see recipe parameters
7 here under Column R. Those are the Rexchip kind of key recipe
8 parameters; is that right?

9 A. Yes.

10 Q. And the number there is -- says 1100 C. Is that fair?

11 A. Yes.

12 Q. Okay.

13 Now, Ms. Bhatia, if you could scroll over to the right a
14 little more.

15 Under the Elpida column, there is the Elpida recipe
16 parameters; is that fair?

17 A. Yes.

18 Q. And there, I see -- looks like Elpida has a different
19 temperature, I guess that is. There, it's 1050 C. Is that
20 right?

21 A. That's what it says, yes.

22 Q. And that 1050 is the same number --

23 Ms. Bhatia, if you scroll back to the green column with
24 the step name. Keep going. Keep going.

25 That step description, that's the step name that matches

1 from Dr. Dyer's Exhibit B, that also has 1050 in the step name;
2 is that right?

3 A. That's correct.

4 Q. So that 1050 number, at least, is matched in the Elpida
5 recipe but not in the Rexchip recipe; is that fair?

6 A. Right. It matches the E300 recipe.

7 Q. Okay.

8 Ms. Bhatia, in the same document, let's -- I think
9 everything we've looked at so far as we've gone through has
10 been something that's been coded a Risk Level 2 or 3; is
11 that -- is that fair of what we've gone through kind of in
12 detail in this comparison we've been doing, Dr. Yang?

13 A. As far as my recollection, yes.

14 Q. Let's look at a couple that are just coded Risk 1.

15 Ms. Bhatia, if you could scroll to Row 36. Here is a --
16 something called "gap fill step" in the green column; is that
17 right?

18 A. Yes, it is. It would really be helpful because I just
19 want to orient myself within the whole process flow because
20 these things happen all over the place.

21 Q. I get it.

22 A. So I'm sorry.

23 Could you scroll up a bit and scroll down a bit. I just
24 want to see where this is occurring. Okay. Just hold -- just
25 let me read. I just want to make sure I can give you a good

1 answer so I know where this is.

2 Polymer -- if you could scroll up a bit. So we filled and
3 then we're doing -- oh. I'm sorry. Scroll -- if we could go
4 down. So show third -- yeah. Excellent. Thank you.

5 Trench etch -- if we could go down a little farther and
6 then -- okay. FCBD high pressure, densify double etch HD --
7 yes. Okay.

8 You're talking about line 36. So I know roughly where we
9 are in the process.

10 Q. Yup. Line 36.

11 A. Yes.

12 Q. That line in the blue columns that the Government alleges
13 were added, that says Risk 1; is that right?

14 A. That's what the person coded it, yeah -- yes.

15 Q. Okay.

16 Ms. Bhatia, could you do the same hide columns trick.

17 And if we look at the recipe in the green column, that
18 was -- the Government says was added and then the Rexchip key
19 recipe parameters. Do you see the first -- the first number is
20 5500 angstroms? That's the same as 550 nanometers in the
21 Rexchip key recipe parameter; is that right?

22 A. I think you're reading -- oh, I'm sorry. I'm looking at
23 the wrong line. The highlight is on the wrong line.

24 Q. Okay.

25 Could you highlight Row 36, please.

1 A. Yes.

2 Yes.

3 Q. And then I won't read them all, but there's a sequence
4 of -- it looks like pluses and minuses. But aside from
5 potentially a unit conversion, does it appear to be the same
6 sequence of numbers off by a factor of 10, probably based on a
7 unit conversion?

8 A. Yes. I think they're referring to layers that they're
9 trying to -- perhaps trying to planarize or something like this
10 that they're depositing on top of.

11 Q. Would you agree, then, that the recipe added in Column J
12 in green matches the Rexchip recipe in Column R?

13 A. Yes. I would say that they seem to be essentially the
14 same, that there's a high degree of match. But yes, I would
15 say there's a high degree of match. We don't know exactly, but
16 yeah.

17 Q. Understood.

18 Ms. Bhatia -- well, let's just look at the next one down,
19 Row 37.

20 Does that look to be an exact match as between the recipe
21 information that was added in Column J and the recipe
22 information from Rexchip in Column R?

23 A. As much information is available about that step, yes,
24 they seem to be exact matches. Yes.

25 Q. And this -- the green columns were coded white, which I

1 think in this sheet tends to correspond with to risk level of
2 1; is that fair?

3 A. Yes. It seems like they feel that this is something
4 confident that they can do -- or is possible to do.

5 Q. Okay.

6 And, Ms. Bhatia, if you could scroll to Row 43.

7 Here's another one that's white. Does -- the formatting
8 is a little different, but does the information added in
9 Column J in the green recipe appear to be a match to the
10 Rexchip recipe in Column R?

11 A. I would say so. The -- I know the variant is an ion
12 implant. And I believe that that code is for an ion implant.
13 So yes, I think that those are a pretty good match.

14 Q. Let's talk now about the recipe comparisons in Dr. Dyer's
15 Demonstrative F.

16 If you could pull those up, Ms. Bhatia.

17 And, Dr. Yang, you understand what Dr. Dyer said he did
18 was take some of those recipes. Column A indicates the recipe
19 from, I think, the document we were just looking at or some
20 version of it for Rexchip; is that right?

21 A. Yes.

22 Q. And then Column B and C correspond to recipe parameters he
23 extracted from Project M at different points in time; is that
24 correct?

25 A. Well, to be perfectly fair, I believe -- I don't remember

1 exactly which document he said was representing Project M at
2 12/2015, but I believe he was referring to that document that
3 we've been just looking at. And so yes. And I believe that C
4 is maybe some other document. I don't know the -- I can't
5 recall the exact -- oh, here you've said C is now Project M
6 transfer package at 2018. So that's significantly later, you
7 know, almost two and a half years later.

8 Q. Got it.

9 A. Right.

10 Q. Do you recall Dr. Dyer testifying that he maintained --
11 when he put this information into his Demonstrative F, he
12 maintained the formatting of the text when he copied and
13 pasted?

14 A. Yes. I think he was -- he was pretty -- he did a pretty
15 accurate job of cutting and pasting.

16 Q. Let's look at Row 7. Just comparing Row A and C, do those
17 recipes appear to be a match or have matching parameters?

18 A. Wait a minute. I just want to reorient myself. I
19 thought -- okay. I just want to -- okay.

20 This is his Exhibit F; am I correct?

21 Q. Yeah, Demonstrative F.

22 A. Okay. So I was a little bit confused.

23 Q. I'm sorry.

24 A. But I still think what I was thinking -- what I said was
25 correct. So that's fine. I just want to reorient myself.

1 Okay. Could you ask me the question again?

2 Q. Yeah. Without -- I'm going to try not to say the numbers,
3 but --

4 A. Okay. That's fine. I can read the numbers.

5 Q. And just looking between -- let's just look between
6 Column A and Column C, Column C being the technology transfer
7 package and Column A being Rexchip.

8 But do those both refer to the same temperature to start?

9 A. Yes.

10 Q. And do they both mention O2 followed by some parameters,
11 two numerical parameters?

12 A. Yes.

13 Q. And those numerical parameters match; is that right?

14 A. I think that they're meant to match, yes. Yes.

15 Q. And then I see HE. Does that reference helium?

16 A. Yes.

17 Q. And, again, there's a question mark in the Project M
18 version. But the other numerical parameter after helium
19 matches between the two columns; is that fair?

20 A. That's correct. That information isn't reflected in the
21 first column. And then in Column C, they just put a question
22 mark.

23 Q. And same thing on Column 8, just comparing Fab 16 recipe
24 and -- I'm sorry -- Row 8 and the recipe in the Project M
25 technology transfer package, does that appear to be a complete

1 match between the two?

2 A. For this particular step, yes. For this one particular
3 step, all the parameters seem to match. Technically speaking,
4 if you look at it, you would see all the parameters match from
5 Column A to Column C.

6 Q. And the formatting even matches from Column A to Column C;
7 is that right?

8 A. Yeah, I guess.

9 Q. And the -- just looking at some of these other
10 comparisons, it's not the case that the formatting always
11 matches as between Rexchip and the technology transfer package;
12 is that right?

13 A. Honestly, I didn't really look at the formatting. I was
14 looking more at the content. But now that you point it out,
15 yes.

16 Q. Let's just look at Row 11 -- or sorry -- Row 12. Is that
17 another case where besides from -- it looks like there's some
18 additional information, unload temp, in the Project M
19 technology transfer. Do the parameters otherwise match between
20 those recipes in Row 12?

21 A. Yes. I think the parameters match.

22 Q. Now, if we scroll over, there's a comparison of tool types
23 that Dr. Dyer included; is that right?

24 A. Yes.

25 Q. And if we look at -- I believe yesterday you were

1 testifying about -- let's see if I -- about Row 9.

2 A. Yes.

3 Q. And for Rexchip it lists IRAD, and for Project M
4 technology transfer package in Column H it lists TEL_INDY; is
5 that correct?

6 A. Yes. That's what's indicated.

7 Q. Are those just different versions of the same tool from
8 TEL?

9 A. Well, I think that if -- they were probably -- I mean, I'm
10 pretty sure that's the same type of machine because they're
11 doing the same step.

12 They seem to be maybe different generations of the machine
13 or maybe different options on the machine because, just like
14 you can buy a car, you can buy these machines with different
15 options for different gases, different temperature ranges. So,
16 you know, it -- it's one description. But I don't know if it's
17 necessarily complete. But yes, I think they're the same type
18 of machine, different versions.

19 Q. Got it.

20 And just -- I don't -- I'm not trying to put one over on
21 you, but if you want to look at P1549.

22 MR. HUNTER: Your Honor, the Government isn't going to
23 be moving this in, but it's at the end of your binder.

24 BY MR. HUNTER:

25 Q. It's a -- I think it's the very last exhibit.

1 A. Yes.

2 Q. It's a press release from TEL. If you want to just go
3 ahead and take a minute to look at it, it's fairly short.

4 Just let me know when you're ready.

5 (Pause in proceedings.)

6 THE WITNESS: Okay.

7 BY MR. HUNTER:

8 Q. And just direct your attention to the -- I guess it's the
9 first paragraph, although there's no indentations. It says
10 that the "TEL_INDY IRad is based on the design of the TEL_INDY
11 batch reactor that has been in production for various
12 applications since earlier this year."

13 That's consistent with what you just said. These are
14 essentially just different generations of the same tool; is
15 that fair?

16 A. I mean, I have to take the representation here, yes. But
17 I think it's consistent but, you know, they have all sorts of
18 different ways of naming these machines. I don't -- I don't
19 make it my business to necessarily try to figure out which each
20 machine is, but yes.

21 Q. Got it.

22 Let's go to D4867.

23 THE CLERK: Which one?

24 BY MR. HUNTER:

25 Q. D4867, which was admitted yesterday.

1 A. Yes.

2 Q. And I think yesterday you were testifying that you
3 understood this to be some sort of attempt to change design
4 rule inputs that Kenny Wang may have provided; is that fair?

5 A. So just to be completely complete about this, this
6 document seems to be trying to document the efforts that UMC
7 purportedly tried to do to correct any sort of, quote/unquote,
8 contamination that Kenny Wang may have had.

9 So I don't think it -- the document itself isn't, but the
10 document itself documents their efforts.

11 Q. Got it. All right. And that's totally fair because I was
12 objecting while you were trying to say things about it
13 yesterday.

14 Now, if we could switch back to Ms. Bhatia. And
15 Ms. Bhatia could pull up what's been not yet admitted as P1006.

16 MR. HUNTER: And, Your Honor, this is an e-mail that
17 I believe contains the same defense exhibit but with an e-mail
18 this time.

19 And if Ms. Bhatia could just pull up the --

20 THE COURT: Okay.

21 MR. HUNTER: -- attachment that was associated with
22 this e-mail.

23 BY MR. HUNTER:

24 Q. Dr. Yang, this is now an Excel version, native. Does this
25 appear to be the same -- does this attachment labeled as P1006

1 appear to be the same document that we just reviewed as
2 Defendant's 4867?

3 A. I think you're asking me a bit much to attest to. You're
4 just showing me this on the screen.

5 I mean, I can review the whole document, but it might take
6 a little time. I just want to make sure that what I testify to
7 is correct. That's all.

8 Q. Sure.

9 A. Yes. So I don't know how I'm going to see it, though, if
10 it's an Excel version.

11 Q. Well, it's really just on the screen.

12 MR. HUNTER: The only thing, Your Honor, I wanted to
13 do was -- this is an Excel version and it's easier to move
14 around.

15 THE COURT: You wanted to put the e-mail in earlier --

16 MR. HUNTER: Correct.

17 THE COURT: -- when 4867 was admitted. And Mr. Sloan
18 didn't have it handy or whatever. I don't know that you did
19 either. But, in any case, is there some way where you can just
20 essentially lay the foundation? If he had to compare every
21 single entry in these two documents that aren't even on the
22 screen together, he can't really do it in any kind of
23 reasonable amount of time.

24 So if you were going to represent what the connection is
25 between 1006 and 4867, how you've -- understand that the 4867

1 was an attachment to 1006, what are you relying on?

2 **MR. HUNTER:** Your Honor, I would represent that the
3 attachment in P1006 is the same attachment as in D4867.

4 **THE COURT:** No, no, I know that's what you're trying
5 to do, but what information do you have that would lead you to
6 say it? In other words, is this one of these UMC deliveries to
7 the Government? Was it given to you sequentially with the
8 e-mail? I don't have the e-mail in front of me. Does the
9 e-mail have a -- reference an attachment? Did this come right
10 after it when you got it from them? Sometimes we've been
11 relying on the sequence in which somebody has delivered
12 something.

13 **MR. HUNTER:** That's right, Your Honor. Ms. Bhatia has
14 pulled up on the screen information about the Bates numbers.
15 So this was something we received from UMC. And we received it
16 in such a way that there was a correlation between the e-mail
17 and the attachment.

18 **THE COURT:** Yeah, what's the correlation? Just the
19 numbers are sequential or something else you're considering a
20 correlation?

21 **MR. HUNTER:** It is that the numbers are sequential is
22 one thing.

23 **THE COURT:** Okay. Now, do you have the -- you
24 apparently want to put the content of the e-mail in.
25 All right. Where is the e-mail? Do you have it that somebody

1 could look at it, particularly me?

2 MR. HUNTER: Yup. The e-mail is P1006.

3 THE COURT: Okay. I'm looking at it on the screen,
4 and it's pretty short and it's big print. So okay.

5 This is from who? Can you tell who it's from and who
6 these people are?

7 MR. HUNTER: I do know who some of these people are.
8 Guo Hao Wu is a UMC engineer. Ming Te Wei is another UMC
9 engineer.

10 THE COURT: Okay. Well, we know whatever Guo Hao Wu
11 does, he's got a UMC or -- I'm assuming it's a man -- has a UMC
12 e-mail address. And then it's to someone named Ming Te Wei
13 without any particular address showing.

14 And then it says, "Hi, MT. Please refer to revised time.
15 You could show all columns to view the all records of every
16 version."

17 You think this is helpful for some reason?

18 MR. HUNTER: Your Honor, I just like to have context
19 to exhibits. I don't know if Mr. Sloan would object to moving
20 in the e-mail. I'd move to admit the e-mail with the
21 attachment. For one, this version of the attachment is easier
22 to view because it's a native Excel. It's easier to zoom in
23 and out and see the words.

24 MR. SLOAN: Your Honor, we would object on hearsay
25 grounds.

1 **THE COURT:** Okay. Now, let's see if it has any
2 hearsay in it. The first line is not a declarative statement;
3 it's a directive, please look at something.

4 Okay. The next one is apparently a suggestion.

5 Is there some inference you want me to draw from this?

6 **MR. HUNTER:** Well --

7 **THE COURT:** Do you have some understanding that I'm to
8 interpret that second line in some way? because at the moment
9 I don't know what he's talking about.

10 **MR. HUNTER:** Your Honor, we could -- I'd be happy to
11 redact the second line. The date, I think, is relevant that
12 the document was circulated November --

13 **THE COURT:** You're interested in the date mostly. Let
14 me just look at that for a minute.

15 So this is from on November 29 of 2018. Now, this is
16 after the time of the first transfer or --

17 **MR. HUNTER:** Yes, Your Honor. And actually after the
18 time of the indictment.

19 **THE COURT:** Yeah, the first transfer was on what date?

20 **MR. HUNTER:** It was September 2018.

21 **THE COURT:** For some reason, I thought it was later.
22 But thank you.

23 So this is after. That's what you're mostly interested
24 in. The other, I don't know what he's talking about. It
25 doesn't sound like a declarative statement of fact that I could

1 figure out.

2 So I'll overrule the objection and admit the exhibit.

3 (Trial Exhibit 1006 received in evidence.)

4 **MR. HUNTER:** Thank you, Your Honor.

5 **BY MR. HUNTER:**

6 **Q.** If we could go back to the attachment to P1006.

7 Dr. Yang, and -- well, to be fair, I know you haven't
8 reviewed this particular exhibit, but if -- taking my
9 representation that it's the same as D4867 -- and if you'd
10 rather, I'm happy to pull that one up. But I just wanted to
11 ask you some general questions about the document.

12 This document doesn't mention anything about inputs that
13 JT Ho made, does it?

14 **A.** I'm happy to take your representation.

15 And no, it doesn't mention anything about JT Ho inputs.

16 **Q.** And it doesn't mention anything about inputs from Neil
17 Lee, does it?

18 **A.** No, it doesn't mention anything specifically about Neil
19 Lee.

20 **Q.** And in your review of the documents of this case, have you
21 identified -- well, strike that.

22 In your direct testimony, you didn't testify about any
23 documents that similarly might reflect an effort to remove
24 inputs from JT Ho or Neil Lee; is that fair?

25 **THE COURT:** He wasn't shown anything similar that had

1 similar efforts in it, but as to those two people?

2 MR. HUNTER: That's correct.

3 THE COURT: I don't think he was, was he?

4 MR. HUNTER: I don't think he was.

5 THE COURT: Are you asking him if he saw anything
6 anytime, anyplace, anywhere? Then you could see whether there
7 were any others. I think the record does not reflect him being
8 shown anything.

9 MR. HUNTER: That's fair, Your Honor. I can strike
10 the question.

11 THE COURT: Okay.

12 BY MR. HUNTER:

13 Q. I think yesterday you said that --

14 THE COURT: At least not pointed out.

15 MR. HUNTER: That's correct.

16 THE COURT: Let's put it that way.

17 BY MR. HUNTER:

18 Q. Yesterday you testified that the design rule inputs were
19 kind of low value or easy to change; is that accurate?

20 A. I think I was pretty specific about these particular
21 design rules that Kenny Wang had some input to. Many of them
22 are fairly low value sort of noncritical types of design rules.

23 Q. Got it. And what is it -- when you say low value or
24 noncritical, what do you mean by that?

25 A. So maybe get a little technical here. But when you do an

1 ion implant, you need to decide where exactly it goes.

2 One way to decide where it goes is you have to do your
3 photolithography very exactly. And the photo resist is there,
4 and it blocks the ion implant. And so you get a pattern
5 exactly from the photo resist.

6 The other way is you rely on some other structure to
7 provide the blocking, in which case the photo resist is just
8 kind of like a masking tape for paint. It just needs to be
9 kind of on the outline. And that structure provides that. And
10 so if you're just providing kind of the block-out paint, then
11 the structure provides that, then it's not such a critical
12 design rule.

13 Q. So these inputs from Kenny Wang, they were just easier to
14 change; is that fair?

15 A. A lot of them -- well, I don't know if they're -- I don't
16 want to represent all of them, but some of the ones that I saw
17 specifically had to do with those types of overlaps for
18 implants. And those are fairly easy to change.

19 Q. And let's -- if we can look to -- you said yesterday that
20 you didn't draft your expert disclosures but you reviewed it?

21 A. I think it was a back and -- so am I allowed how -- to
22 talk about how we did this? Because this is -- again, just
23 making sure.

24 THE COURT: Pardon?

25 Yes, Mr. Sloan.

1 **MR. SLOAN:** Your Honor, I think that communications
2 between counsel and an expert are generally not allowed. To
3 the extent the question is merely did he play a role in
4 drafting it, I don't have a problem with him answering that.

5 **THE COURT:** There are certainly limitations that are
6 contained in Rule 26 in the civil rules. I don't know if there
7 is an equivalent one in the criminal rules, for example, in
8 Rule 16 versus Rule 26.

9 The rule in Rule 26 specifically refers to disclosures in
10 Rule 26. But assuming for a moment the same concept could be
11 applied or there was nothing wrong with it, there were certain
12 things that are excepted, things that are by that --
13 e-x-c-e-p-t-e-d -- things that the witness was asked to assume
14 hypothetically, how much they're paid. Nobody is going into
15 that, I guess, because everybody has expensive experts.

16 And there's one more in there, but -- and it's kind of
17 protected as pretrial communication. I could go back and look.
18 It's 26(b) something or other.

19 Anyway, what have you got there that you're holding?

20 **MR. SLOAN:** You know, I had looked at Rule 26 earlier.
21 Your Honor, Rule 16 in the criminal rules is kind of silent on
22 this.

23 **THE COURT:** Yes.

24 **MR. SLOAN:** I think that the courts sometimes look to
25 Rule 16 -- or to Rule 26.

1 **THE COURT:** That's what I'm doing.

2 **MR. SLOAN:** I understand.

3 **THE COURT:** I said that.

4 **MR. SLOAN:** I understand, Your Honor.

5 **THE COURT:** All right. So the only question is does
6 this question run afoul in some way of what the guidelines are
7 in Rule 26? And so I have absolutely no recollection of what
8 the question was. You didn't jump up, but the witness was
9 concerned because he isn't sure what he's allowed to testify
10 to. And he's been kind of careful, am I disclosing something
11 someone is saying is a trade secret? Am I talking about
12 something that somebody may not be asking me properly to
13 disclose?

14 So what was your question -- or do you want to reframe it
15 at all?

16 **MR. HUNTER:** I can reframe it.

17 **THE COURT:** Okay.

18 **BY MR. HUNTER:**

19 **Q.** Dr. Yang, I'm not asking you to get into communications
20 with counsel specifically. I just want to know if you reviewed
21 the disclosure and if you generally agreed with its contents.

22 **A.** I don't think I reviewed the final version of the
23 disclosure. I believe that we had several versions that went
24 back and forth. And I believe I contributed things like
25 outlines and basic points.

1 So to that extent, I hope I haven't done something wrong
2 by saying that.

3 THE COURT: No, you're not.

4 BY MR. HUNTER:

5 Q. That's fair. There's a couple of things I want to ask you
6 about in the disclosure and see if you agree with them or not.

7 If we can go to page 11 of the disclosure, which is in the
8 binder as P1543 for reference.

9 MR. HUNTER: Your Honor, we'll not be moving to admit
10 this.

11 THE WITNESS: Yes.

12 BY MR. HUNTER:

13 Q. And I want to direct your attention to the kind of second
14 full paragraph where it says "in general, ATS5" in the
15 document.

16 Do you see that?

17 THE COURT: You're on a page here or?

18 MR. HUNTER: Page 11.

19 THE WITNESS: Oh, page 11.

20 THE COURT: Page 11. Okay.

21 (Pause in proceedings.)

22 THE COURT: Is it easier to look -- well, of course,
23 being taken with no context. Is that why you want to look at
24 it?

25 THE WITNESS: I just want to find --

1 **THE COURT:** Sure.

2 **THE WITNESS:** Actually, I don't think I've seen the
3 boilerplate for this legal stuff.

4 **BY MR. HUNTER:**

5 **Q.** Go ahead and review it. No rush.

6 **A.** I just want to be careful. That's all.

7 **Q.** I appreciate that.

8 **THE COURT:** If you're okay on the time, at some point
9 that looks fairly appropriate in your examination, that we
10 should take a break.

11 **MR. HUNTER:** Maybe just finish this.

12 **THE COURT:** Sure.

13 **THE WITNESS:** So you specifically want to ask me about
14 this paragraph?

15 **BY MR. HUNTER:**

16 **Q.** Yeah, that's right.

17 **A.** I just want to make sure I understand the context. Yes.

18 **Q.** Yeah. And this paragraph is talking about alleged Trade
19 Secret 5, which is the Micron design rules. Is that fair?

20 **A.** I think they're Micron design, but I recall they're
21 labeled Elpida.

22 **Q.** Okay. Elpida design rules?

23 **A.** Yes. Yes, yes.

24 **Q.** And I just want to read the last sentence to you. It
25 says, "In addition, design rules are closely tied to a specific

1 process, and knowledge of design rules for one process has no
2 practical value in developing a different process that requires
3 different spacing and feature sizes."

4 Dr. Yang, is that one of the statements that you agreed
5 with in your disclosure, or what is that provided by counsel
6 without your review?

7 **MR. SLOAN:** Objection, Your Honor. I think it's
8 misstating Professor Yang's testimony.

9 **THE COURT:** I'm sorry?

10 **MR. SLOAN:** Objection. I said misstates Professor
11 Yang's past testimony.

12 **THE COURT:** Did he read -- well, I don't know. I
13 can't read the realtime.

14 So the question -- you're asking him about his prior
15 testimony related to this?

16 **MR. HUNTER:** Your Honor, I can rephrase the question.

17 **THE COURT:** Okay. Fine.

18 **BY MR. HUNTER:**

19 **Q.** Dr. Yang, do you agree with that statement in the
20 disclosure?

21 **A.** I mean, I think no is a little harsh. It could be little.
22 There's -- I mean -- but I think there could be a little
23 practical value. So in reading this whole sentence, "In
24 addition, design rules are closely tied to a specific process,
25 and knowledge of design rules for one process" -- I think the

1 proper way would be say "has little practical value in
2 developing a different process that requires different spacings
3 and feature sizes."

4 **Q.** Do you recall providing that opinion or reviewing that
5 opinion when you reviewed your disclosure?

6 **MR. SLOAN:** Objection, Your Honor. I think what's
7 relevant is not the communication but what his opinion is now.

8 **THE COURT:** No, I'll overrule it.

9 Your question is does he remember, really, whether he
10 provided that opinion or not?

11 **MR. HUNTER:** Correct.

12 **THE COURT:** You know, did the lawyer get it wrong, or
13 is this what he told him? Okay.

14 **THE WITNESS:** Probably. This whole document evolved
15 as a series of kind of conversations back and forth. And I
16 think eventually, you know, some information was exchanged back
17 and forth and maybe I said this sort of verbally. But,
18 you know, kind of what I say verbally and casually in a
19 conversation is different than something that I would testify
20 to in court where I have to be very measured and I try to be as
21 precise as possible with my words.

22 So that's why I would say this is roughly correct. I
23 would just correct "no" to "little."

24 **BY MR. HUNTER:**

25 **Q.** And so you then agree with the statement, then, that you

1 cannot correct the later part of the statement, but you agree
2 with the statement that design rules are closely tied to a
3 specific process. Is that fair?

4 **A.** Yes, for sure. They're tied to specific manufacturing
5 process, and the design rules reflect the limits of that
6 manufacturing process or what people want the limits to be so
7 that they can get a good yield.

8 **Q.** Just logically, then, if -- I think you testified that
9 Kenny Wang had copied design rule parameters. Wouldn't that
10 suggest, then, that UMC was copying the specific process that
11 those design rule parameters were associated with?

12 **MR. SLOAN:** Objection, Your Honor. He said Kenny Wang
13 copied them.

14 **THE COURT:** Yeah, I think it has some assumptions
15 about the people that -- again, it could be asked in a way, I
16 think, that if -- because you're assuming that he did certain
17 things.

18 So I'll sustain the objection. And you can try again or
19 you can ask him about would it have any value? Doesn't that
20 suggest that somebody is trying to create something that's the
21 same if it doesn't have any value unless you're doing the same
22 thing? Or whatever the question was.

23 **MR. HUNTER:** I'll give that a try.

24 **THE COURT:** Words to that effect. Okay.

25 \\\

1 BY MR. HUNTER:

2 Q. Dr. Yang, if a member of Project M hypothetically was
3 copying Elpida's design rules, wouldn't that suggest, then,
4 based on this, that Project M was copying the specific process
5 associated with those design rules?

6 MR. SLOAN: Objection, Your Honor. Same objection.

7 THE COURT: I'm going to overrule it. Let's see what
8 he says.

9 THE WITNESS: I don't think it reflects the fact that
10 they're doing exactly the same thing. Design rules can also be
11 a function of the type of machinery that you're using, the
12 equipment, and the limits of the equipment that you have.

13 I believe that, you know, the closer a different
14 manufacturer -- the difference between two manufacturing
15 processes. So if one is at 10 nanometers and one is at 100
16 nanometers, design rules aren't very valuable. But, you know,
17 if you're at 10 nanometers and you're at 9 nanometers, probably
18 they might share some similarities. You might learn something
19 from them.

20 So that's why I said I'm not so happy about this "no
21 practical value." They have little practical value. But you
22 need to also look at the particular circumstances. Design
23 rules come from a consequence of many different factors that
24 you need to consider.

25 \\\

1 BY MR. HUNTER:

2 Q. But the consequences relate to the specific -- to a
3 specific process. Is that fair?

4 A. I think if you're trying to compare design rules for one
5 process to another process, you probably need to know both
6 processes and understand where their constraints come from and
7 then make that comparison.

8 THE COURT: By process, you would mean --

9 THE WITNESS: Manufacturing process.

10 THE COURT: Manufacturing process.

11 THE WITNESS: Yes.

12 THE COURT: Does that mean piece of equipment or how
13 it's used or what?

14 THE WITNESS: It could mean the equipment that you're
15 using, the quality of the stencils, the masks that you have.
16 It could mean the entire process flow because, when you deposit
17 some materials, the different heights and thickness --

18 THE COURT: I think you're getting away from the mic
19 again, to the extent anybody else has to hear you.

20 THE WITNESS: The different heights and thicknesses
21 can affect kind of the resolution of things that you could
22 make. So those are all factors that you need to consider. You
23 need to consider the type of equipment that you have, and those
24 things will lead to things like design rules.

25 THE COURT: Okay.

1 **THE WITNESS:** Now -- yes. So it -- and it also
2 depends how much margin you want to give as well and whether
3 you're talking about design rules in the critical area or
4 noncritical areas.

5 So I'm sorry. Technical things aren't always so clean.

6 **BY MR. HUNTER:**

7 **Q.** And when we talk about specific to a process, I believe
8 that's -- did you review Dr. DeBoer's testimony?

9 **A.** I read it, yes. I can recall some of it.

10 **Q.** Is it fair -- and I think Dr. DeBoer testified to this,
11 but I'll just ask you if it's a fair characterization that
12 design rules are really a function of an entire manufacturing
13 process, they are the limits of a manufacturing process?

14 **A.** I think it depends on which design rule you're talking
15 about. So design rules in the periphery are -- typically, the
16 transistors in the periphery are probably at least two
17 generations behind the transistors in the DRAM core area. So
18 those are much less a function of the manufacturing process.
19 But if you're talking about kind of where your minimum spacing
20 limitations inside the DRAM core, strong function of the
21 manufacturing process.

22 So there's a range of what people might call,
23 quote/unquote, design rules. And there isn't a complete
24 definition, unfortunately, of what a design rule is, but I'm
25 taking sort of the wide range of design rules.

1 In this particular case, I think Dr. DeBoer was talking
2 about the design rules that sort of define a 25-nanometer,
3 20-nanometer, or 18-nanometer DRAM. And what you get to say,
4 18 nanometers is strong function of the manufacturing process,
5 but the peripheral design rules are not.

6 Q. And design rules in alleged Trade Secret 5, those were for
7 Elpida's 25-nanometer process; is that right?

8 A. I'm sorry. Could you just repeat? I just want to make
9 sure I get it right.

10 Q. No problem. Alleged Trade Secret 5, those were the
11 designs rules for Elpida's 25-nanometer process?

12 A. That's my -- in the periphery, primarily. And there were
13 some that have to do with how the periphery meets the DRAM edge
14 mat but not inside the DRAM cell array.

15 Q. And Project M was developing a 25-nanometer process as
16 well; is that right?

17 A. Yes.

18 MR. HUNTER: Your Honor, I think that's a good time to
19 break.

20 THE COURT: Okay. I think it is. I don't know what
21 started me coughing, but let's take a break. Come back at 10
22 after 1:00. Thank you.

23 THE CLERK: Court is in recess.

24 (Luncheon recess was taken at 12:09 p.m.)

25 ///

AFTERNOON SESSION

1:14 p.m.

THE CLERK: Remain seated. Come to order. Court is back in session.

Please be seated.

THE COURT: So, Mr. Hunter, whenever you'd like to proceed.

MR. HUNTER: Thank you, Your Honor.

BY MR. HUNTER:

Q. Dr. Yang, welcome back.

A. Thank you.

Q. I want to stick with your expert disclosure for a second, P1543. And I want to direct your attention to page 14, specifically the second full paragraph that starts "based on his review of the document."

Do you see that paragraph?

A. Yes, I'm -- okay. I just want to reorient myself.

Q. Yeah. Absolutely take your time.

(Pause in proceedings.)

A. Yes.

Q. And in that paragraph, I believe you are speaking about the meeting minutes document and the Rexchip flow that was copied into that; is that fair?

A. I don't think I'm speaking, but I believe that counsel is speaking for me.

Q. That's correct.

1 And I want to direct your attention to the third subbullet
2 or subpart near the bottom. It says -- and I believe
3 referencing that Rexchip flow. It says that "At most, seems to
4 have served as a temporary generic placeholder."

5 Do you see where it says that?

6 **A.** Yes.

7 **Q.** Is that a statement that you agree with?

8 **A.** I mean, it involves a great deal of conjecture, and
9 perhaps -- I'm not sure -- because of the conjecture I'm not
10 sure of the "at most" part. But it is sort of a conjecture on
11 how it may have been used.

12 **Q.** And if it -- just hypothetically, if it were used as a
13 generic placeholder, a placeholder of a sequence would preserve
14 the sequence itself, wouldn't it?

15 **A.** Not necessarily because it depends on what level of the
16 sequence you're talking about. So I believe that -- I think at
17 the module level of sequence, it seems to definitely be there.
18 And also the module level sequence is necessary from kind of
19 just the pure -- you can deduce is by pure deduction because
20 the buried wordlines are coming below stuff and things need to
21 be done before others. So one in the industry would understand
22 that these sequentially need to follow.

23 However, the sequence can also be mixed up as well. So
24 there are certain steps that don't require a sequence. So, for
25 example -- I think I mentioned this earlier in my testimony --

1 ion implantations don't necessarily need to occur at the same
2 sequence. In other words, you need to implant one of the wafer
3 with P type, another type of the wafer with N type, and it
4 doesn't matter whether you did the N type first or the P type
5 first as long as they were doing -- as long as you did it and
6 then annealed it at the same time.

7 **Q.** Let's just hypothetically take Dr. Dyer's interpretation
8 of the meeting minutes. And I think he was of the opinion that
9 Project M -- someone went step-by-step through the Micron
10 sequence and, from top to bottom, filled out a UMC step name.

11 If that were the case, would that placeholder preserve the
12 sequence of steps?

13 **MR. SLOAN:** Objection. Vague and ambiguous.

14 **THE COURT:** I'll overrule on vague. And, again, we
15 have an expert witness. If he has trouble figuring it out,
16 he'll say so.

17 **THE WITNESS:** I don't think it necessarily involves
18 keeping the same sequence because, when you look at a
19 submodule, submodules don't -- the individual submodules could
20 involve a change of sequences and even a change of steps. And
21 so I observed in particular, in that whole mass of documents,
22 that it seems like UMC at some point decided to use a different
23 material, something they called an APFE. And when they used
24 the APFE, for example, they didn't require an anneal step. So
25 then the anneal step was skipped.

1 So depending upon kind of those -- if you go down to that
2 detailed level of steps, the sequence is not necessarily
3 preserved, the steps aren't necessarily preserved. But I do
4 believe that at the level of the submodules, the submodules --
5 the subsequence of the submodules is roughly preserved.

6 But as I've mentioned before, I believe that the sequence
7 of the submodules is relatively well known.

8 **BY MR. HUNTER:**

9 **Q.** And so those sequence of steps may have been modified
10 somewhat over time, as reflected in Dr. Dyer's Exhibit A, for
11 example? Demonstrative A.

12 **A.** Could you repeat that again.

13 **Q.** So what you were just referencing was changes to the
14 sequence of steps that would have occurred over time; is that
15 correct?

16 **A.** Well, I think there's a bit of assumption in there that
17 you assumed that they started with this and that it was
18 modifying this over time. I just don't know if that's really
19 what they started with. But I do see things changing. I just
20 don't know from where they started.

21 **Q.** Now, if we can turn to -- well, let me ask you this,
22 Dr. Yang. If you were to give a test at Harvard and that test
23 was to ask your students to come up with some sort of process
24 flow and one of your students -- and one part of what you were
25 grading was the sequence of steps and one of your students used

1 another student's exam as a placeholder to make his exam, would
2 you consider that an honor code violation?

3 MR. SLOAN: Objection. Irrelevant. Relevance.
4 Incomplete hypothetical.

5 THE COURT: I'll sustain.

6 BY MR. HUNTER:

7 Q. Let's go to page 11 of your report. And --

8 A. Yes.

9 Q. I'm going to ask you about the top couple of paragraphs.

10 So feel free to reorient yourself if you need to.

11 A. If you identify them, then I'll just make sure I read the
12 one before and after.

13 Q. Yep. Just the top paragraph that continues from the
14 previous page and then the second paragraph that says "in
15 general ATS3 and ATS4."

16 A. Okay.

17 (Pause in proceedings.)

18 A. Yes.

19 Q. And in the first carryover paragraph -- I just want to
20 read that -- it says, "As much of the remaining aspects of
21 ATS2, ATS6, ATS7, and ATS8 are focused on the specifics in each
22 process steps, those recipes are highly specific to Micron and
23 not easily transferred."

24 Do you see that?

25 A. Yes.

1 Q. Do you agree with that statement?

2 MR. SLOAN: Objection, Your Honor. He's taken that
3 quote out of context.

4 THE COURT: Well, I'm not sure. If it is, then the
5 witness can say so. It is certainly one sentence in a
6 paragraph. Whether it needs additional content to be
7 meaningful, I can't tell. But the witness can say so if it
8 does.

9 I'll overrule.

10 What was the -- the question is having heard that read, do
11 you agree with it or not?

12 THE WITNESS: Yes.

13 THE COURT: Okay.

14 THE WITNESS: So let me answer that. Well, that
15 sentence within the context of that paragraph, I agree with,
16 yes, rough -- yes.

17 BY MR. HUNTER:

18 Q. Are ion implant conditions one type of recipe that is
19 typically specific to a process flow?

20 A. It's pretty highly specific. It's even highly specific to
21 even the type of device that you're trying to make. So to the
22 level of -- you may even have the same manufacturing process
23 except for the ion implants. You may even have the same GDS
24 files. And you may actually modify the ion implants to -- how
25 shall I say? -- tune your DRAM process.

1 So, for example, you want your DRAM to be very, very fast
2 but you don't care about the power dissipation, you can tune
3 the ion implants a certain way. And if you want your DRAM to
4 consume very, very little power but you don't mind if it's a
5 little bit slower, you can actually tune the ion implants to
6 another way, yes.

7 **Q.** And I want to direct your attention to the following
8 paragraph after that where it says, second sentence (reading):

9 "In addition, these implant conditions are so
10 highly specific that they are only suitable for
11 specific Micron DRAM chip designs."

12 When you say these -- sorry. When the report says "these
13 implant conditions," do you understand that to be referring to
14 Micron's ion implant conditions?

15 **A.** I believe that the ion implantation -- implant conditions
16 I'm referring to are probably referred to ATS number 3 and ATS
17 number 4.

18 **Q.** That's -- and so following that sentence, then, if it were
19 found that ion implant conditions had been copied from ATS3 and
20 4, that would, then, suggest that the specific Micron DRAM chip
21 designs had also been used?

22 **A.** I think you need to qualify what you -- what you mean by
23 the report "copied." Because they're in a document doesn't
24 necessarily mean the word "used." But if, in fact, they had
25 actually been used, that would certainly be highly suspicious.

1 But just because they were in a document, perhaps they were the
2 placeholder. And so you would have to do further investigation
3 about actually used versus copied.

4 Q. If we can pull up Dr. Dyer's slide demonstrative on
5 page 78.

6 And, Dr. Yang, did you review this comparison of ion
7 implant conditions between Micron and Project M?

8 A. Yes, I did.

9 Q. And you don't disagree that these are essentially the same
10 parameters across these conditions except for maybe one place?

11 A. I think maybe one or two places. But, anyway, they're --
12 the ones that are marked in red, I believe, are identical
13 copies, yes.

14 Q. And to use your words, would that be highly suspicious
15 that these two ion implants tables match?

16 A. No. I believe this speaks to the fact of what I mentioned
17 earlier about copied versus used.

18 So if you take a look at the date on this table, it says
19 May 25th, 2016. At that point UMC hadn't even produced -- they
20 didn't even have the equipment to produce a DRAM. And so
21 everything that was written down there was simply kind of paper
22 estimations of what they were doing.

23 Ion implant conditions are actually a fairly difficult
24 thing to tune. Even sophisticated computer simulations don't
25 exactly yield the results that I -- even -- well, I don't know.

1 Maybe today they do, but back then they didn't, when I was
2 doing things. So we had to do a bunch of splits, waste a lot
3 of money to try to figure out how to make things work.

4 So it's kind of like the final tuning step to make the
5 product work.

6 **Q.** And you can take that down.

7 I think you testified on direct that there are certain
8 information that you don't see in the alleged trade secret
9 documents that would be important to create DRAM.

10 Is that a fair characterization of your testimony?

11 **A.** I think it depends on the document, but I think, in
12 general, kind of, as I mentioned before about that whole
13 hierarchy of information, I believe that kind of the detailed
14 level of the full recipe and the full machine parameters are
15 really important. If you don't want to think and you just want
16 to implement it, that level of information is missing.

17 **Q.** And you recognize that the alleged trade secrets are only
18 a subset of the documents that existed on the seized devices
19 from Taiwan?

20 **MR. SLOAN:** Objection, Your Honor. Beyond the scope
21 of his expert opinion and beyond the scope of his expertise.

22 **THE COURT:** When you say "do you recognize," are you
23 just asking him to accept that as a given of some sort or what?
24 Because he doesn't know what was seized or not seized or --
25 I'll sustain the objection.

1 BY MR. HUNTER:

2 Q. Let me ask it this way, Dr. Yang. Hypothetically, if the
3 alleged trade secrets were not representative of everything
4 that was seized from JT Ho, Kenny Wang, if that were the case,
5 could there, then, be other documents that were in their
6 possession that might have some of the data you say is missing
7 from the alleged trade secrets?

8 MR. SLOAN: Objection, Your Honor. Improper
9 hypothetical. Calls for speculation.

10 THE COURT: All right. On the latter, I'll sustain.
11 Or maybe that was an explanation of the former. Anyway,
12 sustained. Okay.

13 MR. HUNTER: Okay. If we could pull up D3070.

14 THE COURT: What's that?

15 THE WITNESS: It's not in my binder.

16 MR. HUNTER: That's a defense exhibit, Your Honor.

17 THE COURT: I don't remember that number. Is that in
18 or --

19 MR. HUNTER: I believe that's admitted.

20 THE COURT: Could be.

21 Ms. Sharma, are you able -- she's checking.

22 THE CLERK: Yeah.

23 THE COURT: It's in. Good. Thank you.

24 BY MR. HUNTER:

25 Q. Do you remember testifying about D3070, Dr. Yang?

1 **A.** Yes, I do.

2 **Q.** And I may be mistaken; so please correct me. But
3 I believe you had placed significance on that lattice structure
4 in the top being something that you traced to Samsung. Is that
5 accurate?

6 **MR. SLOAN:** Objection, Your Honor. I think that may
7 misstate his testimony.

8 **THE COURT:** It's in the form of a question. So if
9 he's not correctly stated what you said, then just correct him.

10 **THE WITNESS:** Could you repeat the question again.

11 **BY MR. HUNTER:**

12 **Q.** My recollection of your testimony was that you had placed
13 significance on the fact that the lattice picture in the upper
14 right-hand corner, you traced to Samsung and you found that
15 significant.

16 Is that a correct interpretation of your testimony?

17 **A.** I'm not -- I can't recall exactly what I said, but this is
18 probably along the lines of what I said.

19 The upper right-hand corner, that picture represents the
20 layout. And this is a 3x2 layout. And I think we've seen
21 other documents that illustrated that UMC was attempting and
22 using Samsung to do a 3x2 layout.

23 And so we see here evidence of them following the 3x2
24 layout, which originally some other documents had shown they
25 had targeted the Samsung 20-nanometer.

1 Q. And if I remember, that was the significance of this
2 document. You were using it to express the opinion that they
3 targeted -- that Project M targeted Samsung's approach?

4 A. I don't think that this document -- this page in and of
5 itself shows that they targeted Samsung, but I think you need
6 to put two pieces together. So what I tried to show is that
7 the buried wordline, which was -- which is shown in the
8 left-hand figure that's 80 nanometers by 25 nanometers, and if
9 you actually blow it out, it's actually shown as that lower
10 figure on the right, that is the buried wordline structure that
11 they were attempting to make. And I think if you go two, three
12 slides further, there's an SEM of the Samsung buried wordline.

13 Maybe more. Sorry. I can't recall. There's too many
14 documents.

15 But there is an SEM of the Samsung wordline. And I was
16 showing how the structures are very similar. And I think they
17 were kind of proud of the fact that they had met their target
18 or something, I guess.

19 MR. HUNTER: If we could pull up P1546, which has not
20 yet been admitted. But, Your Honor, I would represent that
21 P1546 is the same attachment but with an e-mail included.

22 THE COURT: Okay. So the e-mail -- excuse me -- is
23 from Yukihiro Nagai or Nagai Yukihiro, and that's somebody at
24 UMC to somebody else at UMC with the --

25 MR. HUNTER: That's LT Rong.

1 **THE COURT:** Oh, that's Rong. And then cc'd to Ho and
2 some other people. All right. Let's see.

3 Is there an objection or not to 1546?

4 **MR. SLOAN:** Your Honor, our objection would just be to
5 hearsay.

6 **THE COURT:** Well, okay. There is -- there is a
7 statement that the attachment is a modified version of whatever
8 they discussed, I guess, earlier. And then he's talking about
9 our CB -- what do you understand that to stand for?
10 Prediction. I don't know -- was reduced to something,
11 something, something, all a bunch of details, and then some
12 more details.

13 So there are some declarative statements there. If you
14 are offering it for something other than the date, then there's
15 a problem. The earlier one, you mostly cared about the date
16 that it was being transmitted. What about this one? Do you
17 want the text also or not?

18 **MR. HUNTER:** Your Honor, the only thing I care about
19 in the text is just the reference to, quote/unquote,
20 M 25-nanometer case. I also don't understand exactly what all
21 the words mean. So I'm not offering it for the truth. It's
22 just the reference to the, quote/unquote, M 25-nanometer case.

23 **THE COURT:** You mean just the fact that it's in there
24 totally out of context?

25 **MR. HUNTER:** Yes, Your Honor.

1 **THE COURT:** That somebody was talking about
2 M 25-nanometer. Well, if I were going to admit it, you'd have
3 to block everything out except that one little phrase.

4 Mr. Sloan?

5 **MR. SLOAN:** Your Honor, I would say that the whole
6 thing is a declarative statement. And also, if you were just
7 going to leave that part, again, I don't think it would have
8 any relevance.

9 **THE COURT:** Yeah.

10 What is the relevance of just the words "25-nanometer"?

11 **MR. HUNTER:** Your Honor, my understanding was that the
12 attachment was used with Dr. Yang to help support his opinion
13 that Samsung was the target. And I believe the e-mail and the
14 attachment, as I'll go through it with Dr. Yang, actually show
15 that M, or Micron, was the target.

16 **THE COURT:** Well, then you don't really -- what you
17 want is the M. But -- well, then, I think you really are
18 trying to get this whole statement, in effect, in.

19 And it can't just float alone. So I would have to sustain
20 the objection to that exhibit.

21 **MR. HUNTER:** That's fine.

22 **THE COURT:** Okay.

23 **MR. HUNTER:** If we could maybe go back, then, to
24 D3070, which is just the attachment. And maybe they can put it
25 up on the defense screen.

1 BY MR. HUNTER:

2 Q. Now, on this page 1 of the attachment, do you see that red
3 box on the right?

4 A. Yes.

5 Q. Does that also have, quote/unquote, M 25/20-nanometer gate
6 poly mentioned?

7 A. Yes.

8 Q. If we could go to page 6. I see a -- it looks like
9 there's a table. And the second or third -- I guess it's the
10 third column heading. It says "25-nanometer M DDR3."

11 It's actually the next box to the left of the highlighted
12 box. To the left. That one.

13 Do you see that column right there?

14 A. Yes.

15 Q. And the column to the -- at the far right says,
16 "25-nanometer U DDR4."

17 Do you see that?

18 A. Yes.

19 Q. U is the first letter of UMC; correct?

20 A. It is the first letter of UMC, yes.

21 Q. And there's an arrow drawn between that M column and that
22 U column at the bottom in red.

23 Do you see that?

24 A. Yes.

25 Q. And it says in text, "Current target SA is

1 M 25-nanometer-like."

2 Do you see that?

3 A. Yes.

4 Q. Does SA stand for sense amp?

5 A. Yes, it does.

6 Q. Does that sentence provide an indication that the target
7 was something that started with the letter M?

8 A. No, not necessarily.

9 Q. Could it provide an indication that the target is
10 something that started with the letter M?

11 A. Well, I mean, you'd have to understand the whole document,
12 not just look at the arrow. So maybe if you repeat the
13 question. Maybe I'm not parsing it correctly.

14 Q. That's okay. We can -- we can move on.

15 Maybe just look at page 7 briefly, the next page.

16 MR. HUNTER: Maybe you have the wrong -- that's good.
17 I think we can take that document down.

18 BY MR. HUNTER:

19 Q. Now, I have a couple more defense exhibits to show.

20 If we can show D3738.

21 And this is the Hynix TechInsights report that you
22 testified about; is that right?

23 A. Yes.

24 Q. And I see down in the bottom it has a UMCDOJTT Bates
25 number. Do you see that?

1 A. Yes.

2 Q. Do you recognize that as a Bates number that was
3 associated with documents that were in the 2018 technology
4 transfer package?

5 A. I have no idea.

6 Q. Do you know whether this document was something that was
7 in the 2018 technology transfer package?

8 A. I think I can only go off of the anecdotal evidence. But
9 I'm not speaking as an expert; I'm just speaking roughly what I
10 understand.

11 I guess UMCDJTT refers to -- somebody said it was a
12 transfer package, but I really don't have any other sort of
13 information that I can add other than that.

14 Q. And when you were forming your opinions, did you
15 consider -- was it part of your consideration that this
16 document was part of the technology transfer package, or was
17 that not part of your consideration?

18 MR. SLOAN: Objection, Your Honor. Assumes a fact not
19 in evidence.

20 THE COURT: What fact?

21 MR. SLOAN: The fact that it was part of the
22 technology transfer package.

23 THE COURT: Oh. Is there evidence that this went
24 along with whatever else was sent, or do you have evidence it
25 was in that file that was marked with the name "technology

1 transfer" whatever it was called?

2 MR. HUNTER: Your Honor, there is evidence. I don't
3 know that it's -- this is not a document the prosecution
4 focused on, but the UMCDOJTT Bates was used as the stamp of all
5 the documents that were in that package.

6 THE COURT: In what package?

7 MR. HUNTER: The 2018 technology transfer package.

8 THE COURT: Well, what do you mean by package? You
9 don't have anything that was delivered, like, by FedEx to
10 anybody. What do you mean by that?

11 MR. HUNTER: The --

12 THE COURT: The file?

13 MR. HUNTER: The big file of -- folder of files that
14 was delivered electronically, I believe, to Jinhua.

15 THE COURT: What I understood from something you said
16 some time ago was that there's a file that UMC had. I'm not
17 sure if it was on a particular device. I don't remember now.

18 But that there was -- somebody had labeled a file
19 "technology transfer" or something like that, and then there
20 were documents in it.

21 So there's some question as to whether they were actually
22 sent, somebody just planned to send them, some of it was
23 related but not delivered, some was delivered. In other words,
24 we don't know at the moment.

25 If you get any of these people from Jinhua on the stand,

1 you can ask them what was sent. But for now, we don't know.

2 So if you want him to assume it was transferred and would
3 that make some difference, it doesn't sound like he assumed it
4 was. Okay?

5 So it's not clear that his opinion in some way is
6 dependent on this having been transferred or not. But if you
7 want him to and see if it affects his opinion, you can do that.
8 If you never show it was transferred, then it's just not going
9 anywhere.

10 **MR. HUNTER:** Your Honor, that was exactly -- all I was
11 trying to figure out, is if his opinion was informed by this
12 being part of the technology transfer package or not.

13 **THE COURT:** Did you have any -- did you draw any
14 conclusion or were you asked to assume or did you assume this
15 document was transferred in -- what? -- September of 2018 from
16 UMC to Jinhua?

17 **THE WITNESS:** I don't think it really impacted my
18 decision. The reason is is that this is an example of
19 information that might be considered generally well known or
20 readily ascertainable. So it wasn't something that I
21 necessarily focused attention on on whether it was transferred
22 or not. I presumed that Fujian has access to generally
23 accessible information and information that's readily
24 ascertainable.

25 \\\

1 BY MR. HUNTER:

2 Q. Did you presume, though, that this document was something
3 that Jinhua had access to specifically?

4 A. No. I just presumed that they could get access to it if
5 they wanted.

6 Q. Got it.

7 MR. HUNTER: If we could open up P1534.

8 THE COURT: There's a T. Do you want to go to T or to
9 1534?

10 MR. HUNTER: Probably be better to go to the T, Your
11 Honor.

12 THE COURT: Okay. I can't tell. Was this looked at
13 before or not?

14 MR. HUNTER: Your Honor, the e-mail has not been
15 looked at, but the document behind it is an early version of a
16 prior defense exhibit you might remember called "AA etch."

17 THE COURT: When you say it's an early version of a
18 prior defense exhibit -- okay. Is it the defense exhibit or
19 something that looks kind of like it?

20 MR. HUNTER: It's something that I believe contains
21 maybe the first 50 or so pages of the defense exhibit but not
22 all of the defense exhibit.

23 THE COURT: Because?

24 MR. HUNTER: Because this was an earlier version of
25 that defense exhibit that was created.

1 **THE COURT:** You mean the date of the transfer is
2 different? How do we know it's earlier? Is it marked with
3 some date or time that would show it's earlier, or are you just
4 guessing it's earlier?

5 **MR. HUNTER:** Your Honor, the defense exhibit actually
6 had no date on it. And so I wanted to use this version because
7 it has an e-mail associated with it. And that e-mail has a
8 date.

9 **THE COURT:** Okay. But we don't know if it's an
10 earlier version or what it is. Maybe it's just a partial
11 version of whatever they put in.

12 All right. This is somebody at UMC writing somebody in
13 that group at UMC, a whole bunch of people.

14 And this -- it says "subject," then there's nothing. And
15 then it says, "Hi, sirs." And in bold it says, "Cartoon."

16 That's the e-mail?

17 **MR. HUNTER:** Yup.

18 **THE COURT:** And you are assuming that, because it was
19 delivered in some kind of sequential order, that this is what
20 was used to transfer the document to somebody within UMC?

21 **MR. HUNTER:** Yeah, Your Honor. I guess I had assumed
22 that it was an earlier version because the attachment is much
23 shorter than the version -- has fewer pages than the version
24 that defense put into evidence.

25 **THE COURT:** I don't know. Maybe there was another

1 e-mail that says, "Sorry. Here's the rest of it." I don't
2 know.

3 Anyway, you're offering it. So objection? Nonobjection?
4 Hearsay doesn't sound like it's going to go given its brevity.

5 **MR. SLOAN:** Your Honor, it's not clear. They are --
6 the Bates numbers are contiguous. There's no indication in the
7 cover e-mail that there's an attachment per se. It doesn't say
8 "attachment"; it says --

9 **THE COURT:** Do they usually, or do they just kind of
10 chat about things? It says, "Cartoon."

11 I guess it kind of goes to its weight, but I don't think
12 it goes to its admissibility. Do you have anything else you
13 want to argue before I --

14 **MR. SLOAN:** No, Your Honor.

15 **THE COURT:** -- do something with this?

16 All right. I'll go ahead and admit it. I don't think I
17 can assume too much about the state of affairs after that.

18 (Trial Exhibits 1534 and 1534T received in evidence.)

19 **THE COURT:** Okay.

20 **MR. HUNTER:** And, Your Honor, just to be clear, that's
21 P1534 and P1534T?

22 **THE COURT:** Yes. I'm sorry. I should make that
23 clear. So the record is clear, 1534 and 1534T are admitted, an
24 e-mail with an attachment or asserted attachment. Okay.

25 \\\

1 BY MR. HUNTER:

2 Q. Dr. Yang, I just want to direct your attention to the
3 attachment.

4 In your direct testimony did you testify about a document
5 that had, at least to start, similar pictures and an apparent
6 photograph of a Samsung TechWorks -- or TechInsights picture in
7 the upper left-hand corner?

8 A. Yes. I think the document that I used in my direct
9 testimony seems to be similar to this, although this does seem
10 to be shorter.

11 THE COURT: I'm sorry. Do you recall the exhibit that
12 you think this is the start of?

13 MR. HUNTER: I don't have it written down, Your Honor.

14 THE COURT: Okay. All right. Okay. That's
15 all right.

16 MR. HUNTER: Now -- we can take that down.

17 BY MR. HUNTER:

18 Q. Dr. Yang, how many cases have you been engaged in as an
19 expert, roughly?

20 A. Could you specify, like, in what -- what -- to what level.
21 Because sometimes I'm engaged as an expert and then sometimes
22 things have settled. Sometimes I'm engaged as an expert and
23 sometimes it's gone to deposition and then they've settled.
24 And sometimes I'm engaged as an expert and it's gone to trial.

25 I think that, in total, probably the various times I've

1 been engaged as an expert -- I think it was disclosed in my CV,
2 and so I'm just going to go off of my memory. And I think it's
3 less than 15 total for everything. And that means just, like,
4 sometimes I had discussions and there wasn't anything specific.

5 And then I think it's roughly 10 that involved perhaps
6 some type of expert report and deposition. And I believe
7 something like five have gone to trial.

8 **Q.** Got it. How many of those, just roughly, have been patent
9 cases?

10 **A.** I would say the majority of them are patent cases. I
11 think there were two trade secret cases, including this one.

12 I guess this is a trade secret case. I'm not sure. But
13 it's a criminal case; so it's very different. They were all
14 civil cases. I think some of them were -- I guess they were
15 patent-related because there were sort of disputes related to
16 patents, yes. I mean, I haven't really classified them in my
17 mind.

18 **Q.** That's okay.

19 Have you ever been engaged as an expert to opine on the
20 invalidity of a patent or to counter an invalidity opinion?

21 **A.** Yes. I've been on both the -- what do you call it? --
22 asserting infringement as well as asserting invalidity and
23 noninfringement.

24 **Q.** And are you familiar with, in patent litigation,
25 invalidity contentions?

1 A. Usually I get a refresher from counsel.

2 Q. Well, invalidity contentions are kind of a way that you
3 show a patent is invalid by taking the claims on the patent and
4 sort of making a table. And on one side of the table maybe you
5 have the claims; and on the other side, you say here's where
6 that claim is found in the public domain or in the prior art.

7 Is that fair?

8 A. Yes. I've seen things like that, yes.

9 Q. Okay. So that's a way in which you can, kind of in an
10 organized fashion, take something that may be alleged to be in
11 the public domain or to be obvious based on what's in the
12 public domain and sort of, in organized fashion, show where it
13 is in the public domain. Is that fair?

14 A. For a patent case, yes. And I believe patent cases have a
15 very specific sort of ways of doing things.

16 Q. That's fair.

17 Now, yesterday you talked about books or publications or
18 patents that contain information that's in the public domain.
19 Did you create any tables that would show how any of that
20 information in the public domain maps to the alleged trade
21 secrets in this case?

22 A. No, not like you would do for a patent case.

23 Q. I want to talk a little bit about the book that you had
24 that -- I think it was a treatise. And I think it was at
25 D4815.

1 Maybe the defense wouldn't mind pulling that up.

2 Do you remember testifying about this book or the chapter
3 of this book?

4 **A.** Well, it's an ad for the book is what's up. But anyway.

5 **Q.** But as we scroll through it, I think there's pages of the
6 first chapter; right?

7 **A.** Yes.

8 **Q.** Okay.

9 And could we go to page -- I think it's page 24 of the
10 exhibit. And at the bottom there it says, "This section
11 discusses a generic manufacturing process of 2X nanometer
12 buried wordline DRAM technology."

13 Do you see that?

14 **A.** Yes.

15 **Q.** Is it fair to say that the kind of entire description in
16 this chapter is a generic description of a manufacturing
17 process for DRAM?

18 **A.** I think -- well, I think this is -- requires sort of an
19 interpretation of the word "generic." And I think that they're
20 trying to say this isn't specific to one manufacturer. And I
21 think that they were meaning to convey the overall concepts.

22 And I believe that, when you read the details of the book,
23 they actually detail -- they provide one example -- for
24 example, in some of the tables that I went over, but if you
25 read the text of the book, they actually say, well, there's

1 actually these three other ways of doing this step. More
2 advanced techniques seem to be going in this direction. These
3 are types of the directions we're talking about.

4 So this is really kind of more of a tutorial. And I think
5 what they mean by generic is you should think of this as
6 generally applicable across kind of the major -- major sort of
7 people who are doing manufacturing of buried wordline DRAM,
8 which is the type of DRAM at issue now, which is the capacitor
9 over bitline.

10 Q. And you would agree, though, that the Rexchip process flow
11 that was found in the meeting minutes document is not a generic
12 process; that's actually a highly specific process?

13 A. I believe that, when you go down to the actual details
14 that are disclosed in ATS Number 2, for example, those are in
15 more detail than what's provided here.

16 They're not trying to provide that level of description.
17 They're teaching kind of the general concepts, the modules, the
18 submodules, and perhaps some implementations of some -- some
19 more detailed implementations of some of the key submodules
20 down to the level of some steps but certainly not to the level
21 of specificity in the ATS.

22 Q. Understood. And maybe if we can look to one of the -- the
23 book has some tables in it. And I don't have a page. But the
24 tables -- I think the tables had some, like, steps listed. Is
25 that a fair characterization of the book chapter?

1 A. Yes. They have many tables. But some of the tables list,
2 in fact, the steps. And I think we discussed this in my direct
3 testimony yesterday.

4 Q. That's right.

5 A. Yes.

6 Q. And the tables, there was essentially one table per
7 module. Is that fair, roughly?

8 A. Well, I think you need to read the table carefully. And
9 the table is a list of steps. And it's a sequence. And it
10 actually discloses that that's a sequence of steps that need to
11 be followed. And that table is -- corresponds to -- thank you
12 very much -- the figure underneath, which is actually showing
13 how that sequence of steps -- and if you follow the text, it
14 will tell you at what point in that sequence we're viewing kind
15 of what the partial work of the wafer looks like.

16 Q. Got it.

17 And we hopefully don't need to do this now, but I went
18 through the book and counted up all of the steps that were
19 listed in the table in this chapter. And I got to 180 steps in
20 total. Does that sound like a fair representation of the
21 number of steps in this chapter?

22 A. Well, I think I also pointed out in my direct testimony
23 sometimes some of the steps there are really submodules.

24 So if you could zoom in, for example, on Table 1.1. And
25 you look at the AA mask. And I actually specified in my direct

1 testimony that that was actually probably a submodule. And so,
2 sure, if you're kind of mixing steps and submodules, sure, I
3 presume it will be less, because if you have a textbook with
4 500 steps in it, the students are going to complain.

5 **Q.** Okay. If we could now go to Exhibit P177, which is
6 alleged Trade Secret 7.

7 I think we can probably switch back to the prosecution
8 screen.

9 **THE COURT:** Which exhibit is this?

10 **MR. HUNTER:** P177.

11 **THE COURT:** Okay. These are all in, right?

12 **MR. HUNTER:** Yes. This is admitted.

13 **THE WITNESS:** Oh, okay.

14 **BY MR. HUNTER:**

15 **Q.** And if we could go to page 19. Dr. Yang, have you seen
16 this table or graph in the alleged Trade Secret 7?

17 **A.** I presume I have.

18 **Q.** And this has the sum of steps that were used in Micron's
19 80 series through 110 series as distributed in different
20 process types. Is that a fair characterization of the chart?

21 **A.** Actually, I think what they're trying to show is these are
22 important structural steps. So I don't think it's all of the
23 steps. For example, cleaning is not -- they don't consider it
24 a structural step; right?

25 And, you know, inspection, they don't consider a

1 structural step. So they're trying to say what are sort of the
2 important elements. And I think it's -- I assume it's
3 accurate, yes.

4 **Q.** And I think you're right. It says in parentheses up at
5 the -- near the title, it says, "Does not include Metro" -- I
6 assume that's metrology -- "RDA" -- I think that's some sort of
7 defect analysis -- and then "Support." So that reflects that
8 some steps are excluded from this counting as you were just
9 describing. Is that fair?

10 **A.** I think so, yes.

11 **Q.** Now, again, I summed up these numbers for the 90, 100, and
12 110 series. And you can kind of see -- I don't know if you're
13 going to want to check my math. But for the 90 series, it
14 looks like Micron uses about 460 steps as summed across these
15 tables. Does that look roughly correct based on this graph?

16 **MR. SLOAN:** Objection, Your Honor. Vague and
17 ambiguous. Is he asking him to count the number of steps
18 reflected on the graph or the number of steps that Micron
19 actually used?

20 **THE COURT:** Okay. I'll sustain.

21 There are numbers that appear on this graph. And they
22 correspond to different colors of green on the vertical bars.
23 So I'm not sure what you're asking him.

24 You can't ask him whether your count is accurate. All
25 right? So --

1 BY MR. HUNTER:

2 Q. Dr. Yang, let me just represent, if this chart were to add
3 up to 460 steps for the 90 series, that would be a much higher
4 number than the number of steps reflected in the book we just
5 spoke about, wouldn't it?

6 A. Yes.

7 MR. HUNTER: If we could go to P048, which has been
8 previously admitted as Trade Secret 1, Document 11.

9 THE COURT: Okay.

10 MR. HUNTER: Your Honor, could I take one moment to
11 confer with --

12 THE COURT: Sure.

13 (Pause in proceedings.)

14 MR. HUNTER: We can take that down. I think I'm going
15 to skip that.

16 THE COURT: Okay.

17 BY MR. HUNTER:

18 Q. Dr. Yang, I want to ask you a little bit about Silicon7.
19 Now, as I understand it, the product that Silicon7 was going to
20 make or did make was called -- is it pseudo SRAM -- is that?

21 A. That's correct.

22 Q. So it's essentially -- the idea was to use DRAM but to
23 then put circuitry kind of around it to emulate a different
24 kind of memory, SRAM. Is that fair?

25 A. That's exactly right.

1 Q. And I think you described that the DRAM process that
2 Silicon7 used, you partnered with UMC and used UMC's embedded
3 DRAM process; is that correct?

4 A. At that period of time, yes. We had used UMC as one of
5 our foundries. We also used a company called Inotera in Taiwan
6 for their DRAM process as well.

7 Q. And was -- the process node that UMC used for the work
8 with Silicon7, was that 210 nanometers?

9 A. Bringing back memories. I -- I can't say I exactly recall
10 it. I do think the one at Inotera was 110 or 90 nanometers,
11 and I believe that UMC was -- and so we later switched to
12 Inotera because they were more advanced.

13 I mean, if you're interested, actually, this tie clip is a
14 pseudo-SRAM from cell phone technology. This is the first DRAM
15 that went into cell phones.

16 Q. You'll appreciate this. My favorite beer taproom has
17 resistors with the color bands that are coded to the --

18 A. Yes.

19 Q. Anyway --

20 MR. HUNTER: Your Honor, I just --

21 THE COURT: Yes, thank you for --

22 MR. HUNTER: As a fellow electrical engineer, I
23 thought he might appreciate that.

24 THE COURT: -- that very personal anecdote.

25 \\\

1 BY MR. HUNTER:

2 Q. Now, the partnership with UMC, was UMC also an investor in
3 Silicon7?

4 A. Yes. When they saw how successful they were, they -- they
5 said that they really wanted to invest in our company.

6 Q. And when did UMC invest in Silicon7?

7 A. I can't recall exactly off the top of my head, but it
8 certainly wasn't in, like, the first year or second -- I think
9 maybe the second or third year. So we started in '99-2000, and
10 so probably -- I guess -- I'm just guessing off my
11 recollection. I think roughly around the 2003/2004 time frame.

12 Q. And did UMC eventually become a majority shareholder in
13 Silicon7?

14 A. No.

15 Q. Did UMC make public its investment in Silicon7?

16 A. I'm not sure. Maybe they made a press release. I don't
17 know. I think it was fairly well known because we were fairly
18 successful. People didn't think that it was possible to be a
19 DRAM foundry, and we had actually pioneered a new type of
20 memory category. And so I was part of what was known as the
21 semiconductor fabless company association or something. So
22 being there, I know that they loved to make press releases. So
23 I have no idea what they released. I tried not to pay
24 attention.

25 Q. Understood.

1 I want to now turn to your opinion about that -- or let's
2 look at page 4 of your demonstrative. I may have misplaced --
3 well, I think your opinion is that Project M did not practice
4 Micron's process flow technology. Is that -- is that fair?

5 **A.** I think I have to -- we have to sort of couch that a
6 little better.

7 I didn't see evidence that they practiced. I didn't
8 actually take apart what they did, and I wasn't able to
9 actually interview. But I didn't see evidence that they
10 practiced.

11 **Q.** Got it.

12 So I want to ask you some hypothetical questions just to
13 determine your methodology about making that determination.

14 And if you would have seen -- specifically, I want to ask,
15 if you would have seen certain types of evidence, if that would
16 have been relevant to your analysis about whether UMC practiced
17 Micron's process flow.

18 Does that make sense? Maybe I should just start with an
19 example.

20 **A.** Okay. Because I -- you -- there's a lot of things going
21 around here. There's the Micron process flow. There's what if
22 I saw a document? And then what kind of evidence would I need
23 to see at UMC? Those are three big fuzzy things. So I just
24 need to be -- I just need a little bit more pinned down and I
25 can try to --

1 Q. Yup. I'll try to do that. I'll try my best.

2 If you would have seen evidence that Project M engineers
3 copied an entire Micron process flow with the steps, key
4 recipes, and tools into their own document and worked on it,
5 would that have been relevant to your analysis?

6 MR. SLOAN: Objection. Vague and ambiguous as to his
7 analysis as to what specifically.

8 THE COURT: Okay. All right. I'll sustain that
9 objection.

10 But you seem to be asking, if you saw evidence -- in other
11 words, you are characterizing evidence. You're not saying if
12 you saw this document and this document and, you know, either
13 individually or collectively, would that affect your opinion or
14 would you be able to offer an opinion as to whether they
15 practiced the process flow?

16 But if you just say to someone if you saw evidence they
17 practiced the process flow, would that essentially change your
18 opinion as to whether they practiced the process flow -- you
19 didn't get quite to that last step, but you were practically
20 there.

21 So I would say that you might have to frame your questions
22 differently beyond just the one ambiguity objection. Okay.

23 MR. HUNTER: And I'll try to do that. Your Honor. I
24 may not be fully understanding, but all I want to --

25 THE COURT: Let me try again. If you give someone a

1 conclusion about what you've derived from the evidence and then
2 ask him if he would draw the same conclusion but he hasn't seen
3 the evidence that you're relying on, it's not going to be
4 meaningful.

5 Okay. If you have a particular document that you think
6 makes your point and you want to see if he comes to the same
7 conclusion, you could do that. If he hasn't seen it, you have
8 to say, okay, did you see this thing? No, I didn't. Okay.
9 I'm going to show it to you. What do you read it to be? Does
10 that change your opinion?

11 But if you yourself tell him there's evidence out there
12 that makes your point, then he almost has to accept your point
13 in a way. Or at least say "I don't know what you saw,"
14 you know.

15 So that's what I'm just saying you would have to get past
16 where you were to make it meaningful.

17 **MR. HUNTER:** And, Your Honor, just to be clear, I just
18 wanted to ask whether, if he would have seen a certain type of
19 evidence, if he would have considered it relevant or not.

20 **THE COURT:** Well, but the type of evidence that you're
21 asking him if he saw is -- it's like saying, hey, if you talked
22 to these people at UMC and they actually told you they copied
23 things and used them, would that change your opinion? Would
24 you think that was relevant? He would probably say, yeah, it
25 would.

1 But the point is you can't -- like, if you're just asking
2 him if -- if there's evidence there that makes your point,
3 would it -- would it be interesting to him, he'd probably say,
4 yes. But that doesn't go anywhere because that's the whole
5 point of this case, is what does the evidence show?

6 So he says what I saw isn't enough to lead me to believe
7 they practiced. He said you can have a document; it doesn't
8 necessarily mean you used it.

9 Now, for certain kinds of liability, it may be enough that
10 they had it and knew where it came from, et cetera. When
11 you're talking about, however, somebody else a little farther
12 down the line, you may need to show more. I'm not making a
13 finding one way or the other in that regard, but you have
14 conspiracy and some other charges.

15 So I think you would have -- if you think there's a
16 document that shows it or a collection of documents and he
17 hasn't seen them, you can package them up and say, does this --
18 you know, what do you think these are and does that change your
19 opinion?

20 But, otherwise, just saying "I'm just going to ask him
21 whether, if he saw evidence that showed something, would that
22 make a difference" and then you point him to something that's
23 obviously interesting, of course he's going to say yes, but it
24 doesn't go anywhere.

25 So I'm leaving you to see if you can do something with

1 this.

2 MR. HUNTER: That's fine, Your Honor.

3 THE COURT: All right.

4 BY MR. HUNTER:

5 Q. Dr. Yang, what sort of evidence would have been relevant
6 to you to determine that Project M had relied or practiced
7 Micron's process flow?

8 MR. SLOAN: Objection. Improper hypothetical.
9 Assumes a fact in -- not in evidence.

10 THE COURT: What's the fact that's assumed? That
11 evidence is out there? Because he hasn't assumed it.

12 MR. SLOAN: Well, the way he stated the question, he
13 said that there was improper use, as I heard the question.

14 THE COURT: Well, let's see.

15 (Pause in proceedings.)

16 THE COURT: Well, you may be right. It says "to
17 determine that" as opposed to "whether," perhaps or -- not
18 clear. I really think it's just asking him to speculate as to
19 what could possibly be out there. You could have a fly on the
20 wall. You could have all kind of things. All right?

21 I'm just -- I'm going to sustain my own objection. Okay.
22 Not yours.

23 MR. HUNTER: Your Honor, maybe I'll try it the way you
24 suggested. I'm just trying to understand the methodology
25 behind that determination.

1 **THE COURT:** Well, whatever your motivation is is not
2 really -- you could have whatever in your mind you're trying to
3 do. Okay? It's more or less what you're asking. Okay. So
4 I'm not attributing any bad motive to you. I'm just saying the
5 questions are subject to some objection.

6 **BY MR. HUNTER:**

7 **Q.** Dr. Yang, what was your methodology that you employed to
8 reach your conclusion that Project M did not practice Micron's
9 process?

10 **A.** I think that, in general, when -- whenever I approach
11 these types of cases, I always try to approach them with a
12 complete open mind, and I need to look at all of the evidence.
13 And it's a very funny thing when you look at all of the
14 evidence. You know, for a patent case you need to look at
15 prior art, other papers.

16 And, you know, the devil is in the details as far as where
17 they lead -- what was disclosed, who did what first. So it's
18 very hard to say what type of evidence you exactly need because
19 sometimes it could be something as small as a comment in the
20 corner of a paper that was a disclosure. Right? Or it could
21 be an entire publication that was a disclosure.

22 So I think it's very difficult for me to say what type of
23 information. But I think, as an expert, you need to be open to
24 all types of information and try to paint as complete a picture
25 as possible.

1 Q. And would it have been relevant to your methodology if you
2 saw evidence of concealment of what Project M engineers were
3 doing?

4 A. I think that's too big of a hypothetical. Concealment of
5 what? Concealment in what way? Concealment how? Concealment
6 when? Who concealed it? Who concealed it from whom?

7 Again, the devil is in the details. Concealment is just
8 one thing.

9 Q. Just generally speaking, though, would that have been
10 relevant to your determination?

11 MR. SLOAN: Objection, Your Honor. Improper
12 hypothetical. Calls for speculation.

13 THE COURT: I'll sustain that. Actually, it's calling
14 for a nonexpert opinion at this point. It's calling for him to
15 make a factual determination, essentially, not really from an
16 expert level, if you will.

17 MR. HUNTER: That's fair, Your Honor. Could I just
18 have one moment to --

19 THE COURT: Take as many as you need.

20 (Pause in proceedings.)

21 MR. HUNTER: Your Honor, at this time we would move to
22 admit into evidence Dr. Dyer's Demonstrative A and
23 Demonstrative B as summary exhibits.

24 THE COURT: Okay. Now, is there an objection?

25 MR. SLOAN: Your Honor, there is, yes. We object --

1 first of all, I don't think there's a basis to introduce it
2 with this witness. And those are basically expert opinions.
3 It's sort of an -- it's actually attached, a version of that
4 was attached to his expert report. I don't think that expert
5 opinions generally come in. If they're trying to introduce it
6 as a summary, it's not a summary of voluminous facts; it's a
7 summary of his conclusions. And I don't think it's a proper
8 summary report under 1006, which I understand they're trying to
9 introduce it as.

10 **THE COURT:** I brought it up earlier, which is maybe
11 why they're doing that. But in retrospect, I'm not sure that
12 it really would qualify as an exception, if you will, to
13 putting in all the data.

14 Now, the information that he used for those
15 demonstratives, is that in any of these Excel spreadsheets that
16 we have?

17 **MR. HUNTER:** Exhibit -- or I'm sorry. Demonstrative B
18 in particular is built from a -- kind of a large mass of other
19 documents. Demonstrative B in particular doesn't contain
20 color-coding or any kind of opinion testimony.

21 **THE COURT:** All right. I think A may be a problem.
22 Originally, I thought it might be helpful to have it. But as
23 long as I have it as a demonstrative to give context and
24 meaning to the testimony that he gave -- because without it, if
25 you're just hearing it, it's very difficult to follow.

1 I think I really do have to sustain because it turns out
2 that it reflects all manner of sources, if you will.

3 B is his description of what he found. But, again, there
4 is a certain amount of, I guess, characterization in it for the
5 reasons that the raw data is very difficult to understand.

6 So I do think they're both quite helpful, but I'm going to
7 leave them in demonstrative form.

8 Now, B is still just electronically available, right? And
9 A, you were kind enough to give me another copy. Somewhere A
10 is floating around. I probably put it in the side pocket of
11 his binder. Then I put his binders down and put about 10
12 binders on top of them. So I haven't tried to get down to it.
13 But if we have a hiatus of any sort, I'm obviously going to
14 rearrange all kinds of thing here so I can get my hands on
15 them.

16 So I will sustain the objection even though I think I
17 brought it up originally.

18 You can go over and talk to her also, you know, if you
19 need to.

20 (Pause in proceedings.)

21 (Conferring.)

22 **MR. HUNTER:** Your Honor, Ms. Vartain was just asking
23 if you mind that we submit the demonstrative, the electronic
24 version of Demonstrative B along with the exhibits, even though
25 it's not admitted.

1 **THE COURT:** By submit, what do you mean? Oh, make it
2 available on a flash drive. Yes, I'd like to have it. In
3 fact, I was kind of thinking it was. In other words, to the
4 extent that I'm using any demonstratives, I kind of thought I
5 would have them in some form or another.

6 And that would go for everybody if there are ones on
7 either side.

8 How I'm going to go back and actually look at them -- I
9 mean, even the people projecting them -- I don't know. It was
10 kind of hard to navigate in some of these documents. But I may
11 find I just need to look at something. I've tried to, like,
12 take notes, and then I look and I say, What was I saying there?
13 So I'm not sure.

14 So, obviously, I haven't been printing out copies of the
15 dailies. But, for example, now I have a motion from the
16 defendant. To the extent there's something that may be opposed
17 and I may want to go back and look at that testimony, I know I
18 have it, which is very helpful. But I may not print every page
19 out, you know.

20 Okay. Now, so with that in mind, was there anything else
21 that you wanted to take up with this witness?

22 **MR. HUNTER:** No, Your Honor.

23 Thank you, Dr. Yang. No further questions.

24 **THE COURT:** All right. Now, there may well be, then,
25 redirect. We started at -- well, we started about 10 after

1 1:00, I think, not 1:00 itself. And so we could at least go
2 for a while. But I'm wondering how long do you plan to be on
3 redirect? Half hour? More? Less? Just ballpark.

4 **MR. SLOAN:** Your Honor, my guess is I'd be less than a
5 half hour. And I would ask, if you can give us a break now,
6 I'd be able to sort of condense down my questions.

7 **THE COURT:** People always say that, you know, along
8 with the just a couple of brief questions on, whatever,
9 redirect or recross. And then sometimes they have none. It's
10 true when they come back. But no one ever says "I just want to
11 put together a large compilation of questions during the
12 break." So at least they haven't done it yet.

13 Anyway, I'll give you a chance to take a look at it and
14 see. So but I'm just going to say because now we're in between
15 and -- so why don't we come back at a quarter to, and everybody
16 can catch your breath. And then we'll come back then and
17 hopefully finish with Dr. Yang.

18 **MR. SLOAN:** Thank you, Your Honor.

19 **THE COURT:** Okay.

20 **THE CLERK:** Court is in recess.

21 (Recess taken at 2:27 p.m.)

22 (Proceedings resumed at 2:48 p.m.)

23 **THE CLERK:** Come to order. Remain seated. Court is
24 back in session.

25 Please be seated.

1 **THE COURT:** Okay. Are you turning to your abbreviated
2 cross-examination?

3 **MR. SLOAN:** I am, Your Honor.

4 **THE COURT:** All right.

5 **MR. SLOAN:** Are you ready?

6 **THE COURT:** I am ready.

7 **REDIRECT EXAMINATION**

8 **BY MR. SLOAN:**

9 **Q.** Professor Yang, you testified that the entire sequence of
10 steps in Micron's alleged trade secrets was not generally known
11 or readily ascertainable; correct?

12 **A.** The entire set of details, yes.

13 **Q.** And the entire sequence of steps in the alleged trade
14 secrets was not generally known or readily ascertainable; is
15 that correct?

16 **A.** Yes, that's what I said. And I wanted to add the details
17 in the steps as well.

18 **Q.** Based on your review of the evidence, did Project M's tech
19 transfer process flow contain the exact sequence of steps in
20 Micron's alleged trade secrets?

21 **A.** Absolutely not --

22 **MR. SLOAN:** No further questions, Your Honor.

23 **THE COURT:** That was abbreviated. All right. Okay.
24 Is there, based on that cross-examination, any redirect?

25 **MR. HUNTER:** No, Your Honor.

1 **THE COURT:** All right. Okay. Thank you. Just a
2 second.

3 (Pause in proceedings.)

4 **THE COURT:** All right. Then after a protracted period
5 on the stand, Professor Yang, you are excused at this time.

6 **THE WITNESS:** Thank you very much, Your Honor.

7 (Witness excused.)

8 **THE COURT:** Now, it's my understanding that we have
9 come to a significant juncture in the schedule of this case.
10 And we are at this point -- it's my understanding that
11 defendant does not have witnesses that they have available to
12 call because they're in China --

13 **MR. DiCANIO:** Correct, Your Honor.

14 **THE COURT:** -- or suffering from some medical
15 condition that would make it difficult for them to engage in
16 long flights to the U.S.

17 **MR. DiCANIO:** Yes, Your Honor.

18 **THE COURT:** Okay. The last time I asked you for an
19 update, you didn't have anything much new except that the firm
20 you've been working with in China is pursuing all of the, as
21 you understand it, necessary steps to, first, determine if the
22 embassy can be used in Beijing and then how it's going to work.

23 Once you had that plan, then the Government had to check
24 from their end, and they were waiting to hear from you,
25 I believe.

1 Is there anything new at the moment?

2 **MR. DiCANIO:** Nothing new, Your Honor, but what I've
3 said to my colleagues is that, at least as of yesterday, the
4 plan was to have an update session on Monday, and it would be
5 very helpful if we had an answer or at least had some sense of
6 the duration of time it will take to get an answer so that we
7 would have some -- a little bit more clarity.

8 And, two, that we would put together the evidentiary
9 record that we talked about yesterday -- and I will try to get
10 that on file this week -- with respect to the travel issues,
11 all of the details of the travel issues.

12 We started that yesterday, Your Honor, but hopefully get
13 that on file tomorrow, no later than Friday, I promise.

14 **THE COURT:** Okay. I'm just thinking for a minute.

15 I'm kind of curious where the sort of the hang-up or the
16 holdup might be. Is it getting through to people? Are people
17 telling your people they have to check with someone higher? Or
18 do you have any idea what's going on on the ground there?

19 **MR. DiCANIO:** Yes, Your Honor. My understanding is
20 that an application has been made. There've been discussions
21 about what is being asked for and the reasons why. And the
22 only thing that we're waiting for is word back in terms of an
23 indication.

24 And if you recall yesterday, Your Honor, I'm asking for
25 one or the other, either a yes or no or some understanding. Is

1 it going to take an extended period of time? So at least I can
2 report that back to the Court.

3 **THE COURT:** Okay. But when you say there's
4 discussions, who's talking to whom?

5 **MR. DiCANIO:** Right. So, Your Honor, my understanding
6 is that we are speaking to the local branch of the Ministry of
7 Justice within China, who we understand would be the
8 appropriate organization to address this.

9 **THE COURT:** Local branch being in Fujian Province?

10 **MR. DiCANIO:** Fujian; correct.

11 **THE COURT:** And are they the right people to talk to
12 about what's going to be available in Beijing?

13 **MR. DiCANIO:** That is our understanding, Your Honor.
14 The issue would be whether it's at a consulate in Guangzhou,
15 which is the closer town, or at the embassy in Beijing. That's
16 where the request should go. So once we hear back, I'll be
17 able to report it.

18 **THE COURT:** So the law firm that you've been working
19 with is talking to some U.S. Government representatives in
20 Fujian Province? Or are you talking about the Fujian
21 government?

22 **MR. DiCANIO:** It would be the local branch of the
23 Chinese Ministry of Justice. So it would be on the Chinese
24 side, not the U.S. side.

25 **THE COURT:** That's just so they can get out, isn't it?

1 Or to give the testimony if there's a way to handle it in
2 Beijing --

3 **MR. DiCANIO:** Correct. It would be --

4 **THE COURT:** -- or Guangzhou?

5 **MR. DiCANIO:** I'm sorry, Your Honor. It would be for
6 permission to be able to go to the embassy to conduct the
7 session.

8 **THE COURT:** Okay. Were they given any idea about how
9 long it might take to get word back?

10 **MR. DiCANIO:** They have pushed, and as of at least
11 this morning, because I check every night and every morning,
12 they had not heard kind of a time estimate. I'm pushing to get
13 some word by Monday.

14 **THE COURT:** If you get the approval, then does it go
15 over to the Government to see if the embassy can be used or --
16 in other words, who's then checking that out?

17 **MS. VARTAIN:** Well, I think that I will have to check
18 that out, Your Honor. So I'll need the most specific
19 information Mr. DiCanio can give me.

20 **THE COURT:** Fine. Okay.

21 All right. Obviously, if you knew something before
22 Monday, you should let Government counsel know. And, frankly,
23 I'd like to know so that -- you know, if there's something
24 significant. If you just say we haven't heard yet, you can let
25 her know so she isn't sitting there saying what's going on?

1 But I'll just assume you haven't heard. Okay.

2 Now, as far as, then, a formal continuance to some
3 particular day and time, you're proposing Monday. And what
4 would be a reasonable time, then, to have a Zoom status
5 conference with whatever members of your respective teams here
6 would be appropriate? Everybody doesn't have to show up. But
7 I need somebody who knows what's going on at the conference.
8 And so what do you think for a time?

9 **MR. DiCANIO:** Your Honor, from my perspective,
10 whatever would be most convenient for the Court and the
11 Government, we would be available.

12 **THE COURT:** It doesn't matter too much to me. I don't
13 know. We could just say, like, 10:00 or whatever if that
14 sounds okay.

15 **MS. VARTAIN:** That's fine.

16 **MR. DiCANIO:** That's helpful, Your Honor, because it
17 does give me a chance to catch up with the folks in China at
18 the end of their day. So if there's anything new, it would
19 give me the most up-to-date information.

20 **THE COURT:** So that time works, though?

21 **MR. DiCANIO:** It does.

22 **THE COURT:** Say 10:00.

23 So we'll say the matter will stand over until Monday,
24 April 11th at 10:00.

25 And I am not trying to push you in terms of responding to

1 the motion for judgment that was filed by the defendant,
2 Ms. Vartain, but do you have any idea when you might be filing
3 that? Again, just kind of generally.

4 **MS. VARTAIN:** Truthfully, I haven't read it yet, Your
5 Honor.

6 **THE COURT:** That's fine. Then I won't even ask you.

7 **MS. VARTAIN:** Thank you.

8 **THE COURT:** Okay. It's very detailed. I have not
9 read it with the degree of care that it actually deserves. I
10 have tried to get a general impression of what the issues are
11 and how it's set up. A lot of the pages -- and you were
12 concerned maybe they're taking too many pages. A lot of pages
13 are discussing and laying out their view of what the evidence
14 was. If you have a different view of it, you may feel that you
15 want to comment about that one way or the other.

16 Then there's essentially taking that as a given, they then
17 proceed to argue the law and in some areas to bring more facts
18 in at this point. But that's kind of the structure. And,
19 frankly, it reads very well in the sense that -- I don't know
20 who wrote it, but it --

21 **MR. DiCANIO:** Not me.

22 **THE COURT:** You've been here all day. So I was
23 thinking, well, who had -- who could possibly be writing it if
24 everybody is here in court on, you know -- but, anyway, it's
25 easy to read. All right? Which I just want to compliment you

1 on, because if it was long and really hard to follow, that
2 would be too much. Okay. But it's not hard to read.

3 **MR. DiCANIO:** Thank you, Your Honor.

4 **THE COURT:** Okay. So I think we may not be able to do
5 anymore right now. Before you lose me, you wouldn't -- if
6 something came up in the interim, you can always get ahold of
7 Ms. Geiger and set something up. But at least you're probably
8 losing me until Monday.

9 **MR. DiCANIO:** Your Honor, may I just ask one question?
10 If I did have an update, what would be the appropriate way to
11 let the Court know about it? Through Ms. Geiger or some
12 filing?

13 **THE COURT:** First, let Government counsel know in case
14 there's any kind of feedback that would then affect whatever
15 you were going to convey to the Court. And then I think you
16 could probably let Ms. Geiger know by e-mail. And then if I
17 need to follow up with you, I could do that.

18 Or if you feel that a hearing would be appropriate in the
19 interval, then propose something jointly on behalf of both
20 sides, and we'll see -- you know, to have some kind of a
21 conference before Monday. I'm not going anywhere during the
22 week. And so, I mean, I'll be here. So if something came up
23 that needed to be addressed between now and Monday, I'm happy
24 to, you know, take care of that --

25 **MR. DiCANIO:** Thank you, Your Honor.

1 **THE COURT:** -- if I can.

2 Okay. So, well, then, I think it may be, you know, not
3 goodbye forever, but --

4 **MR. DiCANIO:** Maybe a spring break.

5 **THE COURT:** I was going to -- until we meet again.

6 **MR. DiCANIO:** Thank you, Your Honor.

7 **MS. VARTAIN:** Thank you, Your Honor.

8 **THE COURT:** All right.

9 **THE CLERK:** Court is in recess.

10 (Proceedings adjourned at 3:00 p.m.)

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12 **CERTIFICATE OF REPORTER**

13 I certify that the foregoing is a correct transcript
14 from the record of proceedings in the above-entitled matter.

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16 DATE: Wednesday, April 6, 2022

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21 _____
22 Ruth Levine Ekhaus, RMR, RDR, FCRR, CSR No. 12219
23 Official Reporter, U.S. District Court
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